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[OFFICIAL NOTICE.]

## National Commercial Gas Association, Boston Section.

NATIONAL COMMERCIAL GAS ASSOCIATION,
OFFICE OF SECRETARY,
BOSTON, MASS, June 20, 1911.

There will be a meeting of the Boston Section, N. C. G. A., the evening of June 27th, at 8 o'clock, at Wesleyan Hall, 36 Bromfield street, Boston. Capt. W. E. McKay, General Manager of the New England Gas and Coke Company, will read a paper entitled "From the Mine to the Main." Capt. McKay, besides being a very able speaker, is also a man of wide experience, who will give everyone ideas that can be applied to every branch of the gas industry. No member of the N. C. G. A. can afford to miss this lecture. The committee to nominate officers for the coming year will be appointed at this meeting. It is earnestly requested that every member make a special effort to attend. Yours truly, L. H. HEMENWAY, Sec'y.

## BRIEFLY TOLD.

DEATH OF ANOTHER VETERAN.—Another veteran in the local ranks of the fraternity passed away on the 15th inst., when Mr. Albert Riblett joined the hosts of the dead. For 48 years he was continuously in the service of the Manhattan-Consolidated Gas Companies, and for well over 30 years had been the capable Superintendent of the 14th street works. He was in his 64th year, and is survived by his brother, William Riblett (now stationed in the Consolidated Company's 18th street works), a son and a daughter.

THE CLOSE OF THE CANADIAN ASSOCIATION'S MEETING.—"Raining in Quebec," was the remark of the earlier risers in that city the morning of the 16th. The session was called to order by Mr. Samuel Carter, of Guelph, and a right good presiding officer he proved to be. A fair attendance was on hand. The first paper considered was that by Mr. R. A. Wallace, the bright and courteous gentleman in active charge of the gas division of the Quebec Company's trading. His subject was the "Operating of Water Gas Sets." A paper being in hand on kindred topic entitled "Increasing the Efficiency of a Water Gas Plant," by Mr. J. S. Haug (a youngster who has it in him to go on to greater things), who is the understudy of our own Howard E. Mann, it was determined to read this, having joint discussion on both. The plan worked out in excellent style, and the debate was at once instructive and entertaining. Votes of thanks having been passed to Messrs. Wallace and Haug, the Association heartily cheered an invitation extended by Mr. D. R. Russell, of St. Louis, to be in St. Louis next October during the session there of the American Gas Institute. The paper by Mr. W. J. Alston, of London, entitled "What We are Doing to Meet Our Latest Competitor," was then taken up. In the absence of the author the paper was read by Mr. J. M. Young. This, despite the absence of the author, led to a prolonged discussion, in which some telling ways of how to meet competition either from electrical or natural gas currents, followed. The business for the day was brought to an end in a lengthy discussion over the next place of meeting. This terminated in placing the matter in the hands of the executives, with a strong recommendation that Toronto be named, and that the date be during the period in which the great annual fair in that city is on, further provided that an exhibition of gas appliances be held there. There was a strong sentiment, in the event of Toronto not being finally named, that the meeting be held at Belleville, on the usual dates. The afternoon and evening were most agreeably taken up, through the courtesy of the Quebec Company, a special car conveying 54 members and guests to the world-famed Shrine of St. Ann de Beaupre. This beautiful place of worship was visited, and he who enters its great gates, goes into a glorious-appearing edifice, every line of the construction of which is a study in beautiful harmony, might not scoff at what he saw, for those whose teachings would not permit them to worship, must perforce pay the homage of admiration. The subsidiary chapels, cloisters and the like having been looked over and through, the special again conveyed the party to the table top of that world's dream in swift-falling water, the inspiring, peace compelling Falls

of Montmorency. A dinner really of the banquet type was served in the Kent House, adjourning the Falls. The features of the feast were the toastings of Toastmaster (Mr. Thos. D. Miller), and a beautifully fraternal speech by Mr. C. E. A. Carr, General Manager of the Frontenac Gas Company, of Quebec. It surely is a satisfaction to have men of his stamp closely identified with our industry. The last day of the meeting beheld Mr. R. A. Wallace in the Chair, and he occupied it as though directing "the affairs of men" was an everyday occurrence with him - likely, too, it is. In the absence of Mr. W. C. Philpotts, of Toronto, his paper on "Calorific *vs.* Candle Power Standards for City Gas," was read by the Vice-Chairman. This subject brought out the best discussion of the meeting, notable participants therein being Mr. D. S. Barton, a prominent Consulting Engineer, of Montreal, and Messrs. T. D. Miller, Steinwedell (Cleveland, O.), Keillor and Wallace. Although Mr. Kennedy was unable to prepare his promised paper on "Merit or Points System as a Basis for the Remuneration of Commercial Representatives," a letter from him gave rise to a most interesting debate on the topics that he would have treated. It was led by that prince of commercial men, "the only McNab," of Montreal. The weight of discussion was all in favor of the point plan. This brought the technical sessions to a close, and, after suitable resolutions acknowledging the capableness of the executives, the attenion of the members and the courtesy of their hosts, the Fourth Annual Meeting of the Association was declared at an end.

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A Wonderful Piece of Tunnel Work.—The Consolidated Gas Company's engineering force, quite like the business management of that huge corporation, too, keep doing great things without the help of an orchestra. For instance, one hears of McAdoo tubes and tunnels, the Belmont bores and the like, but hardly a word about the gas men's common, ordinary tunnels. Two of these are in use - the first for nearly 20 years, between midway of New York city proper and Long Island City, L. I.; but a third, running between the Company's magnificent plant at Astoria and the West foot of 132d street and Locust avenue in the Bronx, is well underway. The bore is D shaped, 19 feet in horizontal cross section, the vertical height being 19 feet 6 inches. The tunnel roof is semi-circular, the radius thereof being 9 feet 6 inches. The present planning of the tunnel calls later on for the placing therein of 2 pipes, each 72 inches in diameter, which pipes will be hooked up to the 48-inch pumping system, at present supplying the several holder stations, completed and under construction. The tunnel will be 250 feet below the surface of the East river. The diameter of the Astoria shaft is sufficient to provide for a proposed shaft to 111th street, Manhattan, with a diameter of 34 feet 6 inches. The diameter of the Bronx shaft is 26 feet. This work is under the direct charge of Mr. W. Cullen Morris, Engineer of Construction, reporting directly to Chief W. H. Bradley. The magnitude of this work is surely of the going order, although so perfect is the organization of the gangs, that a hitch of anything like moment so far in its development, has yet to be reported.

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June Meeting, Philadelphia Section, Illuminating Engineering Society.—The regular meeting of the Philadelphia Section, Illuminating Engineering Society, was held Tuesday, June 16. Preceding the meeting the regular dinner was served at Green's Hotel. The sessions proper were held in the Philadelphia Electric Company's building, 1000 Chestnut street, and were called to order by the Chairman of the Section, Mr. Wm. J. Serrill. Secretary Muth was also present. The first business transacted (the election of officers) resulted in the following choices:

*Chairman*—Mr. J. P. Israel.
*Secretary*—Mr. L. B. Eichengreen.
*Managers*—Prof. A. J. Rowland and Mr. C. W. Wardell.

There were two papers on the programme for the evening, the first of which was "Filament Ignition of Gas," by Mr. Howard Lyon. The author stated that experimenters have been working for a great many years on the ignition of gas by catalytic agencies; that is, through a material which causes a chemical change in any other material without affecting itself. Platinum-black has been frequently used without much success, for it gradually changes its form. It has been used in the shape of a pellet on the mantle in some instances. The platinum metals have always been used, as they are not oxidizable and have a high melting point. Mr. Lyon finds that an alloy of platinum and iridium is the best material for the purpose. A great deal of experimenting has been done to get the proper size and shape of wire. The one giving the best results has a spinal in the center, which form gives a hotter wire and a longer life. The author exhibited a chart which showed temperatures at which filament is ignited. An ingenious scheme has been worked out so that the wire will not be heated above 2,000° C. A detail drawing of the holder for the filament, this holder being quite a small affair, was shown. A number of fixtures was also shown, which fixtures were lighted by the filament ignited. A dry battery is contained in the fixture, which has a certain amperage and voltage, so as to heat the filament to a certain temperature before the filament acts on the gas. A simply controlled cock turns the gas on and makes the circuit through the battery and filament. When the lighting chain of the fixture is released the circuit is broken; of course, no pilot is used with this system. Mr. Lyon showed a fixture which is controlled from a distance, this affair being equipped with a magnetic cock. The paper was discussed by Messrs. W. J. Serrill, G. S. Barrows, C. O. Bond, G. S. Green, Morton and White. The questions and answers were as follows: "Can the igniter be used on natural gas?" "No; on account of the absence of hydrogen." "Can the house or test cement be used with a transformer to heat the filament, instead of the dry cell in the fixture?" "Has not been tried. "Can one cell in the fixture operate any number of lights?" "No; only made for 2-light fixture at present." "How do draughts affect the lighting of the fixture?" "The fixture cannot be lighted in a draught strong enough to blow out a match; but the filament is very well protected." The second paper of the evening was presented by Mr. R. H. Zeek, on the "Lighting of a Garage by Electricity." Mr. Zeek said that the garage was a 2-story building, each floor being 75 by 30 feet. Ceilings of white plaster and walls of yellow pressed brick, with wainscoting of white tile, 6 feet high. Lantern slides showed plan of building and location of all lamps. The wash yard at the entrance to the garage was to have a horizontal illumination of 3.5 foot-candles. Using formula $H = \frac{S\,I}{\text{Effec. lumens}}$ S = area; I = foot-candle illumination; H = number of lamps. It was decided to use 100-watt, frosted-bowl, mazda lamps, with extension type holophane reflectors. This figured out 5 lamps needed. For symmetry, 6 lamps were installed at a height of 10 feet, to be out of reach of water. Two wall brackets were also installed in this room for local illumination. Illumination readings made in the wash yard gave an average of 2.02 horizontal foot-candles and .68 vertical foot-candles; height of plane, 2 feet 9 inches. It was found that 8 lamps were needed to give an illumination of 2 foot candles in the room used for storing the cars. This room occupies a space 56 feet by 30 feet. Lamps were hung 10 feet above the floor, from the H = ⅘D, where D is average distance between units. The actual readings on a horizontal plane averaged 2.86 foot-candles, the increase being due to reflectors. The assembling room, on the second floor, is 95 feet by 30 feet. Calculations were made on the assumption that 2 foot-candles on the horizontal plane, 3 feet 4 inches above the floor, were sufficient. This figured out 7 lamps. Only 6 lamps were used; the observed intensity was found to be 2.01 horizontal foot-candles. The machine shop, on the second floor (30 feet by 30 feet), is equipped with lathes, shaper, etc.; 5 lamps were suspended from the ceiling, and 5 wall brackets over the work benches. All brackets were equipped with 60-watt mazda lamps, with extensive type, holophane reflectors, 3 feet above the benches. Average observed illumination on the benches was 2-foot candles, while the average illumination on the machine, 3 feet 6 inches above the floor, was 3-foot candles. All ceiling lamps were 100-watt mazda lamps, with extensive type holophane reflectors. Discussion was participated in by Messrs. Serrill, Barrows, Little, Zeek and Bond. Questions and answers were as follows: "Has the lighting of wash yard by means of a glass pavement, with lights under same, ever been tried?" Answer, "No." "What kind of portable lamp was used in the machine shop?" "One mounted on a stand." "What is best illuminant for cleaning brass work on automobiles?" Someone stated that the Cooper-Hewitt lamp was thought to be the best illuminant for this purpose. This was the last meeting until September, and 68 members and guests were present.—S. B. Eichengren.

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An Excellent Bit of Evidence.—It certainly may not be truthfully gainsaid that the business value of conventions of salesmen and managers was well illustrated by the 14th annual meeting of the Sales Department, Welsbach Company, held at Philadelphia, Pa., and Gloucester, N. J, the week of May 22d to 27th, inclusive. The Company rightfully feels that the enthusiasm aroused for the new lights and mantles developed at the factory this year is a good indication that these meetings are worth all they cost. The programme, in addition to the business discussions listed below, included several social features which helped to enliven the proceedings and to increase the feeling of good fellowship between the various departments. Luncheon was served each day in one of the factory buildings at Gloucester, and dinner at the Hotel Walton, Philadelphia. Wednesday afternoon an automobile tour was arranged, the "wind-up" being at Jackson's road house, at Westville, in which spacious hostelry one of the widely famous "shad dinners," for which "the neighborhood" is noted, was royally served. The programme was as follows:

*Monday, May 22d.*—Tour of the factory; preparation of exhibits (managers and factory representatives are requested to put in place any exhibits to be shown by them during the week); inspection of sundries, under direction of A. L. Crawford.

*Tuesday, May 23d.*—Opening address, by Townsend Stites; "Hanging Outside Arc Lamps," by A. A. Higgins; general discussion invited on other problems pertaining to fitting; "Inspection and Maintenance," by W. T. Pease; "Changing Inspection from Weekly to 10 Day Periods," by S E. Chubbuck; "Retail Sales," by C. D. Corbus; "The Future of the Rental Business," by F. G. Corbus.

*Wednesday, May 24th.*—"The Sale of Sundries," by G. W. Riley; "How to Increase Wholesale Sales," by R. J. Rolston; "Experimental Work and Development," by T. J. Litle.

*Thursday, May 25th.*—"Suggestions on the Sale of Reflex Lights; the Sale of Welsbach Mantles, and the Sale of Sundries," by A. Leamy; Address, by M. C. Whittaker; "Gas Ignition," by Howard Lyons; "Artificial Cellulose Mantles," by S. Gulbransen; Address, by Randolph Whitman.

*Friday, May 26th.*—"New Developments," by H. S. Miner; "Advertising," by R. F. Baldwin; "The Factory," by E. L. Knoedler; Question Box; Closing Address, by Sidney Mason.

[Official Report—Furnished by the Secretary—Continued from Page 1205.]

## PROCEEDINGS, THIRD ANNUAL CONVENTION, PENNSYLVANIA GAS ASSOCIATION.

Held at Reading, Pa., April 12, 13 and 14, 1911.

Second Day, Morning Session.

The President—The next paper will be on

FURTHER NOTES ON OFFICE RECORDS AND FORMS,

by Mr. J. Floyd McPherson, of Easton, Pa.

We have all heard much of the importance of the complaint department and the commercial department of the gas industry, but the importance of the office and its functions seem to have been often overlooked. I will begin at a point which I consider the foundation of office work and try to express my ideas from that point.

*Meter Reading Department.*—A meter reader's form, composed of a coupon perforated for each month of the year, should be provided with the name and address of company, manufacturing numbers and date of setting being stated thereon. These forms are arranged geographically in the same order as the loose-leaf ledger sheets. Each reader is given a loose leaf, leather covered binder each day with the slips in proper order, containing his work for the day. The books are turned in at the close of the day, and are next given to the consumer's ledger's clerk who enters the readings and bills, if the consumption seems O. K. If any unusual increase or decrease is found, by comparing the consumption with same month last year and previous month same year, the reading is again taken to avoid incorrect billing and complaint. This method of re-reading doubtful cases is not frequently required, and while it might create suspicion in the mind of some consumer relative to correctness of invoice, we have had no trouble convincing the few of the practicality of our method. After the readings are recorded on ledger sheets the coupon for the month is torn from the slip and filed for reference. The coupon method prevents the reader from knowing the previous month's readings. Our meter readers also deliver the bills.

In July, 1909, we had 7 meter readers and a total of 9,852 meters. We called a meeting of the department and same was reduced to 4 readers, then we devoted our energy in making a perfect department, with which end in view we compiled the following figures and offered prizes, 1 and 2, for best and second best results monthly:

| Readers. | Meters Read. | Months. April. | May. |
|---|---|---|---|
| A | 2,364 | 2,131 | 2,323 |
| B | 2,763 | 2,678 | 2,756 |
| C | 2,081 | 2,218 | 2,263 |

| Readers. | Months. June. | July. | August. | Increase, Per Cent. |
|---|---|---|---|---|
| A | 2,194 | 2,445 | 2,335 | .. |
| B | 3,086 | 3,042 | 3,424 | 24 |
| C | 2,435 | 2,225 | 2,344 | 12.6 |

A made no errors in any month. B made 35 errors in March, and by August had reduced errors to 3. C made 31 errors in March, by August he had reduced errors to 3. These weekly meetings are conducted by myself, as I consider it important to keep in the minds of the readers that their work is as important as any other in the business, and to create an increased interest in their work. This is accomplished by using any good suggestions they might make.

*Consumer's Ledgers.*—The loose-leaf ledger, in my opinion, is the most convenient to handle. In addition the following advantages I will endeavor to make clear.

The ledger sheet is designed to carry one consumer's account for 2 years on one side of the sheet, and 2 years on the other, which enables one account to be kept for 4 years on one sheet of paper. Upon the meter reading books being turned over to the consumer's ledger clerks, the readings are entered and the consumption compared as per my previous explanation. Each ledger contains 500 accounts arranged geographically, and, upon all the readings being entered, the ledger is closed, the recapitulation made up, and the clerk goes on to the next ledger, and so on, so that about 3 days before the close of the month, all the ledgers are closed and the summary prepared which presents a statement of the month's sales on or before the last day of the month. After the close of the discount period, all forfeited discounts are charged on the ledger sheet and collected, or if allowed, consumer is obliged to sign a receipt for same which is regarded as cash and the cashier is reimbursed by voucher, the net amounts being originally entered on the ledger sheets. If a consumer changes his address, his ledger sheet is transferred to the new district so that there is no waste of stationery. Likewise, is the meter reading slip transferred to the new district. Upon a consumer leaving town the sheet is filed in the transfer binder for future reference or use, if necessary upon a probable return.

*Order Department.*—The following order forms in triplicate are suggested, eliminating any that local conditions make useless. A record book is kept for entering each form of order, and date of completion is stamped in space provided:

| | |
|---|---|
| Complaint order. | Meter shut-off order. |
| Illuminating pipe and fixture order. | Service order. |
| Miscellaneous work order. | Main order. |
| Fuel connection order. | Service application. |
| Appliance return order. | Meter application. |
| Stove return order. | Meter discontinuance order. |
| Meter order. | Investigate order. |

An applicant for gas meter is required to sign a service application, if no service has been previously installed, a meter application and an appliance application if he wants to buy a gas range or fixtures, and from the applications orders are made. Orders pursue the following course: The office copy is kept for the office files after being entered in the proper record book. The other two copies are sent to the shop where the shop copy is kept on file, the original being given to the man who goes out on the job. Provision being made on the order for specifying materials and labor necessary to complete any work, it is reported on the order by the mechanic, and, upon satisfactory completion, the consumer signs the order. The original is turned in to foreman at shop, who copies data on the shop copy and figures labor costs; then the order is sent to the stockkeeper, who prices the materials and keeps the records to post in his stock ledger. The order is then returned to the office, which is usually the day following completion of same, and the date of receipt by office is stamped on order. The order is then turned over to the commercial department, where the work of every solicitor is closely followed up; from the department the order is turned over on the same day to bill clerk and charge is made in petty journal and invoice rendered at once. The order then is given to order clerk who marks same "completed" in record book, and the order is filed with the office copy. All filing is in geographical order same as ledger sheets are arranged. Complaint orders are all executed the day of receipt. Each order should be carefully checked in order to avoid complaint relative to any incompleted work.

Any order issued for work or material to be charged to consumer is entered in the daybook, and, upon completion, the billing price is entered. At the end of the month this book is closed and incompleted orders carried forward, so that at the end of each month the petty journal total charges equal the total of the daybook for that month, less the incompleted orders.

*Meter Records.*—To be able to balance the meter record every day is certainly important, and I think the following routine a good one. The meter orders are issued in triplicate, the office copy for the office files, shop copy for the shop, and original for the fitter, who sets the meter, and the order provides for the following data: "Mfg." number; "Co." number; "Index," when set; date set; cost of labor and material used. Each meter when put in stock is tagged, and when a meter is issued from stock the tag is returned to the office with the original order and daily meter report. The daily meter report specifies the meters issued and the meters returned to stock, so that the orders executed must check up with the meters reported on daily sheet. Under no condition is a meter issued from meter shop without an order.

*Complaints.*—Too much thought and effort cannot be directed to the perfection of the office end of this work. It is unquestionably a golden field for the making of friends and the increasing of business. The following record book is used for complaints, showing the time of day received and the time executed, as it is important to execute every complaint order received each day relative to service.

In the matter of high bills, it is advisable to first point out the period of time covered by the invoice in question, as many people question a charge without looking at anything other than the amount. Next, it is well to have the meter reread and, if no error is discovered, the meter should be removed and tested. Immediately upon the meter test being completed the test form is sent to the office. If the meter is found to have been running slow, the consumer is so advised, and, if fast, a rebate is issued covering a fixed period of time.

While the wisdom of making a liberal credit might be questioned, yet it has been proven that consumers are pleased and encouraged to increase their gas consumption, as a greater confidence in the methods of the company is engendered, consequently the business relations are made more pleasant. The average consumer is honest and possesses the right to make complaint; and, while many of the complaints are not justified, the consumer who is usually honest thinks he is justified. I believe it is good business to refer all complaints on bills to an official of the company that he may listen attentively to the consumer's side and encourage a full expression of his views. On many occasions there will be a satisfactory explana tion at the first interview, for a large number of people are satisfied by the anxiety shown to investigate, and are pleased with the courtesy extended. If all steps of investigation are followed, satisfaction to the consumer is assured. The qualities that make up a successful grievance adjuster are tact, patience, judgment and a conscientious desire to serve his company to its best interests; and, in my opinion, the interests of the company and the consumer are mutual.

*Receiving Teller.*—The value of this position in a gas office is sometimes underestimated. The receiving teller comes into personal contact with 75 per cent. or more of the consumers, and has an opportunity to do much good. All customers should be met with a pleasant word if possible, or at least a pleasant expression. In addition, a courteous "Thank you" should be handed every person making payment. A capable teller with the ability to receive payments from a line of waiting people with a calm demeanor, greeting each new face and referring any inquiries to the proper department, in a cheerful way, is as great an asset as the gas in the company's holder. Cash is distributed in daily cash receipt book provided.

*Collecting Department.*—The average man is honest, but if collections are allowed to take care of themselves the results will not be pleasing. The following method is at present bringing in pleasing returns:

Our meter readers who deliver bills during the 3 last days of each month collect any bills which consumers might wish to pay, but we do not encourage this, as our desire is to get all bills out on the evening of the last day and to get all our people to come to our office to pay their bills, so that they may see our up-to-date line of gas appliances and that we may have an opportunity to interest them. Therefore, no collector is used to collect gas accounts until such accounts become delinquent. Upon an appliance account becoming due, a letter is mailed, addressed to debtor, calling his attention to the fact; if this letter does not bring payments the collector then calls, the idea being to reserve the collector for accounts that require extra attention. If the debtor is absent upon the call of the collector a letter is addressed, requiring a date to be set when he may call for payment, or if the debtor makes an appointment a letter is addressed stating that we expect the payment to be made as per appointment. All gas consumers in arrears receive a 10-day cut-out notice, and, unless the account is paid within that time, service is discontinued. A charge of $1 is made for reconnecting consumers disconnected for nonpayment.

*General.*—The general books I have reserved for last, not because I consider them least important, but because the other work leads up to it.

Requisitions should be supplied to each department to be sent to purchasing department for any material required—the account number specified to which the material is to be charged. An order in triplicate should be provided, the original to be mailed to the firm from whom purchase is made and the duplicate kept in office file and triplicate sent to the storeroom, so that, upon the material being received, the triplicate is returned to the office with material received specified, date of receipt and signed by storekeeper who received same. The triplicate and duplicate are attached to invoice, and the account number to which this is to be charged placed in stamp form provided, extensions and additions checked. If all goods are accounted for on the triplicate order, the invoice is turned over to the head of the department which requisitioned the material for his signature, so that no overcharge can be made. This being secured, the invoice is vouchered, one voucher being made each month for all invoices purchased from each firm and totals distributed to each account specified in voucher. The voucher is entered in the accounts payable register, and distributions posted to the accounts payable column of the various accounts charged in the distribution book. Upon all vouchers being closed, the accounts payable register is totaled, and that total agrees with the total distributions in the accounts payable column of the distribution book. Stock transfer vouchers are made and posted to the stock account column in the distribution book, crediting the various stock accounts and charging the accounts that material was applied on. Likewise, transfer vouchers are made and posted in the miscellaneous column of the distribution book, covering the fixed charges, viz.:

The payroll is posted to the wages columns of the accounts to which it is distributed, and the total wage distribution in the distribution book will equal total wages for month, which total is entered in accounts payable register in column provided.

1. A transfer voucher is made from the petty journal in which all appliance sales are entered and posted from voucher to the distribution book.

2. Postings are made from the distribution book to the general ledger.

3. Cash is posted direct from cash book to general ledger.

4. When the accounts payable are due, checks are drawn covering the amount of the voucher. These checks are entered in the voucher paid record numerically, the voucher number being placed on check and the check number on voucher. The voucher is mailed with check and is receipted and returned by the creditor. The postings from the voucher paid book are made direct to the general ledger.

5. Revenue is journalized and closing entries made in journal which is pasted to the general ledger.

The number of operating accounts to be opened, covering the manufacture, distribution, collection and general expenses, should be determined by conditions.

I have but touched on the general books, as this department is one that requires a great deal of space, and much more time than I feel is due me would be required to do it justice.

*Storeroom.*—I will endeavor to give a description of how the supplies are handled at the warehouse of a company under my observation from the time they are received by the storekeeper, showing how they are disbursed and put in use, with accounts charged and the stock credited.

*First.*—Showing how requisitions are handled and why they are necessary. Since these supplies have been put in stock at the warehouse they cannot be drawn without the proper requisition from the foremen of the different departments.

The appliances that are sold are handled by the appliance department, and they have a special requisition called appliance requisition, made up in sets of four, with a space for name and address, lease number and order number. One is marked original requisition; the second, office copy requisition; the third, storekeeper's requisition; the fourth, shop copy requisition. These four have the same number.

The one marked original and the storekeeper's requisition are sent to the storekeeper, and when the appliances are disbursed the party taking them out signs these two requisitions as receiving them from the warehouse; then the original is sent back to the appliance department and the storekeeper's requisition is put on file at warehouse. The shop copy is sent with the work order to the fitting department, and these are turned over to the workman who will set the appliance. He has the shop copy signed by someone at the house where the appliance is delivered, to show that it was received at the proper place. Then the copy is returned with the work order to the foreman of the fitting department and filed away for reference.

There are other forms of requisitions used by the different departments for drawing supplies needed to carry on their work, and on the backs of these requisitions are the following instructions:

"It is imperative that this requisition have date, name of department, signature of the foreman in the department named, and the class of work or nature of business for which material is to be used; also, it is especially requested that account numbers be given when obtainable."

These requisitions are necessary for the storekeeper to have in order to account for the supplies he puts out, and the foremen of the different departments can send for supplies by filliag out one of these, otherwise they would have to draw supplies personally.

These requisitions are written upon a daily stock sheet every day, then filed away for future reference. For instance, one of the foremen might declare that he did not order certain supplies, which sometimes is the case; then the storekeeper can look up the requisition and show the man exactly what he ordered.

*Second.*—Show how the stock ledger is kept, giving details.

The stock is posted in tbe stock ledger from the daily stock sheets, which are numbered consecutively and on which new stock, stock returned, and stock disbursed are written. The leaves of the stock

ledger are properly ruled and spaced for this particular purpose, one space for articles received, which has date, purchase order number, number of articles, and price per article; another space for articles disbursed, which has date, order number, requisition number and number of articles, and price per article and total value. The latter is used largely during inventory.

The supplies handled by the company are classified under different stock numbers, and are arranged in the stock ledger accordingly. First, we have the gas main stock, consisting of all pipe and specials, 4 inches in diameter and over, which is classed under 506. All supplies are placed in the ledger in numerical order and alphabetical order. All pipe under 4 inches in diameter is classed as pipe stock under 507. All the fittings under 4 inches in diameter which are used in making the different connections are classed as fitting stock under 508. All the gas appliances, except Backus' heaters, are classed under appliance stock, 512-A. All fixtures are classed under 512-B, and the miscellaneous gas stock, which is not mentioned in the above, is classed under 513, and the Backus' heaters under 516. This takes in all the gas stock, and is practically everything that is carried in the warehouse, except the different repairs, which are charged direct and not carried in the stock ledger.

A separate sheet is placed in the ledger for each article, and this sheet has the record of the date the articles were put in stock, the price of the article, when disbursed, and the amount on hand each day, and from this record you can refer to the daily stock sheets which give full particulars. In this way, there is a complete line of reference by which you can trace an appliance, learn where it came from and how it was sent, whether by freight, express, carload lots or otherwise.

*Third.*—Show how the amount of stock drawn is checked against the amount used.

There are a number of men who do work for the company for which no order is issued, and such supplies are charged direct to the different accounts when drawn, as material used, since we receive no memorandum of supplies used in this way. As an illustration, we will suppose that the office draws one package of matches for office use. I would charge that to 1,826, and the stock would receive credit for that package of matches.

The gas department has several wagons for setting appliances and several for setting meters. These wagons carry a small amount of supplies such as are used every day for setting meters and appliances, and they try to keep this amount on hand all the time. In order to do so, they turn in an order for supplies. These are put up sometime during the forenoon and they get them at noon. At noon they turn in an order which is put up sometime during the afternoon, and they get them in the morning. In this way they carry plenty of supplies with them, and it gives the storekeeper an opportunity to supply their requirements after the wagons are out and it does not keep the men waiting for supplies. We carry each fitter on a separate sheet, placing the amount of supplies drawn under material from the work order, we get what the material is used for.

All the material used for installing appliances and meters belongs to the company, and is tagged as such by the fitters, and, when they take out an appliance or meter, they are requested to strip the service and turn the material into the warehouse. Here it is written up on the daily stock sheet as being received, and entered in the stock ledger the same as new stock; then the amounts are credited and the different stocks charged with the same in dollars and cents for entry in the general books.

*Fourth.*—Show how wagon sheets are kept and stock transfer vouchers are made out.

The wagon sheets are designated as weekly balance sheets, which are ruled and spaced for this purpose. In one space are the articles, and all the supplies drawn are entered in this space. Another space is marked "On hand." In this column is entered the quantity of articles that anyone gang has its possession on the first of the week. In another space is material drawn, and all material, in pounds or number, is placed in this column opposite the name of the article. In another space appears the totals of material on hand and material drawn, which gives the amount of supplies in their possession during the week. It is necessary to dispose of this material and show how and what it has been used for, so we have a space for "Material Used," under which are spaces to be filled in with an account number showing the number of pounds or articles that are used for the different kinds of work performed, and these are placed under each account separately, opposite the name of the article.

Then there is another column for "Balance on Hand," under which is entered the material the gangs have on their wagons at the end of the week which is obtained by the foreman of the wagon, who takes an inventory of the wagon and turns it to the store clerk. The sum of the material used and balance on hand should equal the sum of material on hand the first of the week and material drawn during the week.

Now we have the supplies as drawn and as used. In distributing them under the different accounts, it is necessary to have the prices, and there is a column for this purpose so that the price can be placed opposite each article and another space for the value of stock drawn. This gives us the value of supplies drawn.

Another important function is to get the value of the supplies used for the different kinds of work, so there is still another space on this sheet for "accounts charged," the material being placed under a certain account of material used and priced out and the results in dollars and cents are placed under the same account of accounts charged.

For an example, I will use 300, which is a construction account. All material used by one gang, which is represented on one sheet for the one week, is placed in column under 300 of material used, which are priced out, and the results in dollars and cents are placed in column under 300 of accounts charged. These supplies are kept track of daily with the daily stock report sheets, which has been stated before.

Get the material drawn from the daily stock sheets or requisition, and the material used from the work orders and from which you have to determine what kind of work the material is used for, as to whether it should be classed as new work, maintenance, new business, gratuitous work, etc.

In the gas department all materials used for connecting domestic appliances are classed under 1819G, and the appliance under 1819F. There are so many accounts to charge material to that I will not endeavor to explain many of them, but in order to give an idea of what there is to contend with on this part of the work, will say that there are from 30 to 40 accounts to deal with every week.

After all the supplies on the weekly balance sheets have been priced and extended under the proper accounts, it is necessary to go over each sheet and classify the stocks under "Value of Stock Drawn," and get the sum of the miscellaneous gas stock, the sum of the pipe stock, the sum of fitting stock, and so on until you get all the supplies classified on the different sheets, and when all the supplies are classified and all the supplies used are charged to the proper accounts, then it is necessary to summarize these accounts and classifications, for there are a number of sheets that have the same accounts in each sheet and the same kind of supplies, so there is another sheet called the "Weekly Recapitulation" which has one space for accounts charged and another space for stocks credited.

Under accounts charged you placed the account number on left-hand side of this space, on the same line to the right-hand side of the space, you place the sum of all the sheets for the week of the same account of dollars and cents, then handle the balance of the accounts in the same way.

Under stocks credited you take the sum of all the supplies of the same class for the week in dollars and cents, and place it under the stock number that designates the different supplies summarized on 1 or 2 sheets, charging the different accounts and crediting the different stocks. We get out one of these reports at the end of each week, unless the month ends on the middle of the week, then we carry the report over to the last of the month.

*Fifth.*—Show how inventories are taken and how often.

The inventories are taken according to their classification. It has been stated before that the supplies are classified under the different stock numbers. On January 31 and June 30 an inventory of pipe stock is taken; March 31 and September 30 the gas fuel appliances; April 30 and October 31, the fixtures and other illuminating appliances; May 31 and November 30, miscellaneous gas stock; June 30 and December 31, gas main stock. By so doing it gives two complete inventories a year. We have the prices extended by the stock clerk and same are turned in at the office.

*Discussion.*

The President—This very interesting paper is before you. The discussion is to be opened by Mr. Gotwals, of Norristown.

Mr. Gotwals—I have listened with a great deal of interest to Mr. McPherson's paper, as the points brought out are those in which I am directly concerned, and congratulate the writer upon the complete manner in which he has handled his subject. We are given a

clear and concise explanation of the different forms and records necessary for a gas company. Regarding the form of meter route book, I would like to ask what is done with the coupon after the entry is made in the consumer's ledger and bill made out? What have you to show to whom it belongs? For instance, if you have occasion to look up the original entry; that is, the statement taken by the indexer in stating every man's account, what is there except the index in the ledger? They might want an index to the original entry. Is it not customary to have one for 2 or 4 years, as the case may be? What is the objection to the indexer knowing the former statement, providing he is changing from one route to another occasionally, and, of course, providing he does not collect any of the bills? On page 2 mention is made of weekly meetings held with the meter readers, which, I think, is a good thing, if it does nothing else but impress upon them that they are an important adjunct to the success of the business, for the best success is obtained if all employees are impressed with being a particular part of the business and charged with certain responsibilities. Regarding the loose-leaf ledger, after three years' use of it I am convinced that it is the most complete method of handling consumers' gas accounts, for it makes it possible to carry accounts for several years on one sheet, thus enabling you to make quick comparisons. We have provision on our ledger sheets for 8 years, and find it a very useful and convenient form. Mr. McPherson says that, if a consumer moves from one house to another, the sheet is transferred to the new district. Now, do you not think it it is better to have a house record rather than a customer record, for the house is permanently located while the customer is not; also, in making comparisons, there may be different conditions at the new house to which he has moved, hence comparisons do not amount to much. Again, then, if you folio all of your ordinary meter sheets, as we do, it would disturb the continuity; again, suppose you should want to look up a certain customer's record and did not know his last residence, but did know of some other place at which he lived at one time, how would you find his ledger sheet? Regarding charging the amount of gas used by the consumer in the ledger, would it not be better to charge the consumer at the gross rate, and when the bill is paid charge the discount and credit the cash sales—charge up the cash sales with the full amount? That is our custom at Norristown, and it works out very nicely. Make that charge, and those that do not discount the bill, make a separate charge each month for that amount for the discount. We have at Norristown a delinquents' ledger, in which we transfer at the end of each month all unpaid gas bills, thereby having them in a condensed form, alphabetically arranged; also having a valuable record of credit—this is a loose-leaf book, of course. What I mean by a valuable record of credit is, if a person moves out of town for a while and comes back again, you look in this delinquent ledger to find they have always been delinquent, and you take a prepayment meter, and very often get hold of some who owe you money that way, too. Regarding the forms used for orders of every character, Mr. McPherson suggests them all to be in triplicate; one copy for the office; and also an entry to be made in the record book in the office. What is the need of the office copy? Does it not make a lot of extra indexing and filing in the office? As provided here, they are all recorded in the record book. On page 4, regarding the form of application or contract, I think it is necessary to have the same signed whenever there is any work to be done if there is a charge, and in the case of prepayment meters, too; but do not believe it necessary in the case of an ordinary meter, for as the prepayment of one bill is an acknowledgment of the responsibility of the party for the meter, I believe the time consumed in getting this signed is wasted. A great many orders are received over the telephone, and hence signatures are often not obtained. He did not bring out the manner of making out the bills--whether gas appliances or ranges are the same. I will tell here about the book we have started in Norristown. In making out our bills we have what we call a gas appliance ledger, in which we make all our entries for gas stoves, and that is made up in duplicate form. The bill is perforated and the duplicate is a copy of the bill. When we make out the bill to send to our customer the carbon copy remains in the book. You can have the loose leaf if you want it We have an exact copy as the invoice was sent out to the customer, and if there is any dispute about the charge we can show them the carbon copy and they cannot dispute the bill, because it was an exact copy of the bill. Of course, we have a loose-leaf index, indexing all the accounts in the book, and that is a permanent index. You can add as many sheets to the index as you want. We have the bills numbered and indexed by bill numbers, and find it very convenient and quite a time saver, because we do not have to enter the charge up twice. On page 5 mention is made of meter records, which is a very important thing. We are using at Norristown 4 distinct order forms for appliances, each a different color. One is for ranges, water heaters, heaters, hot plates, etc.; one for fixtures and piping; one for ideal kitchen equipment; one for industrial appliances. On the back of each provision is made for material and labor. We have 2 record books, one for charge orders and one for non-charge and sundries, and every order is entered therein before going to the shop, with a space to mark when attended to. As to complaints, I think that is a very important part of the department of business. I believe much can be done towards making pleasant relations between the company and the consumer by the dispatch and manner in which they are handled. Employees should be polite and accommodating. The impression left by an employee at a house very often determines the attitude of the company towards the public. In handling complaints of high bills no stone should be left unturned to ascertain the causes of the same, for one dissatisfied consumer can do much harm to the business. Regarding the allowing of credits after meter has been tested, if the meter has been tested and shows O. K., and the consumer is still not satisfied, I think it is positively wrong to allow a credit on the gas bill if the meter tests O. K., because in doing this you show that you do not have confidence in your meter. I think you should stand by the gas meter every time, because, as we all know, the greater percentage of them favor the consumer. Of course, I do not mean that in the way it sounds; but I don't know the percentage of them slow. I heartily indorse what he says on pages 6 and 7, regarding the attitude of cashier and office employees in general towards the consumer. It does not cost anything to be courteous, and by so doing we not only make friends for ourselves but for the company as well. Regarding the collection department, we have about the same plan as Mr. McPherson brought out here, sending out the notices when bills become due on gas appliances, following it up with another, etc. On page 8, regarding the form used in ordering goods needed, the one in triplicate is no doubt the best and safest way; but, regarding the account to which material is to be charged, would it not be more convenient to use the name of the account instead of number, as there would be less liability of charging to the wrong account? As to the matter of vouchers, what is the advantage of a voucher system when a check is also made out? Could not the invoice become the voucher by simply placing the number of the check on the same? Of course, where the voucher is used as a check, then I believe it is a good thing; but if not, I think it is valuable time wasted. The distributions are made right on the invoice. I notice Mr. McPherson also says one voucher is made each month for all bills in the same form. That, of course, is all right where you do not take the cash discount, but if you are taking the cash discounts you may have bills for 3 or 4 days in the same form. Of course, you could not follow that out. In these days almost every firm allows 2 per cent. 10 days' which it pays to take if you can meet the bills right along. Regarding the storeroom, I am not competent to either commend or criticize, for I have had no experience in this line; but as we are about to introduce a system of stock-keeping, I am very much interested. In connection with this, I would like to ask the object in taking inventories of different stocks at different periods. Why not all at the same time; twice a year if required? In these days of labor-saving devices, the thought that should be kept in mind is simplified forms, and only a sufficient number of these to warrant the conduct of our business with as little confusion and as great dispatch as possible.

The President—Gentlemen, let us hear from some one else on this very important paper.

Mr. Frick—I would like to ask one or two questions, which may be not pertinent, but if not, why there is no need to answer them. Are the meter readers paid by the day or by each 100 meters read. I also notice that, in the case of a meter being tested and found fast, a rebate is issued covering a fixed period of time. I would like to know just what period of time that is. I notice that meter readers deliver the bills during the last 3 days of each month, which I suppose is probably done on account of having a discount period. With us we have no discount time, and it has been our practice for quite some time to deliver the bills as soon as possible after the meters are read. In other words, the meters are read and entered, the bills made out and delivered just as soon as possible. We find by doing so that 60 per cent. of the bills are paid before the end of the month. Now, that is without any discount period at all. It probably might be a good thought. I notice on page 8 that a triplicate of the material order is sent to the storeroom. We did that for a while, but found,

in cases where a large number of fittings was ordered, it was not at all desirable for the storekeeper to know what that contained, because it was occasionally easier for him to order fittings, 1,000 L's and 500 T's, than it was for him to count them up to find out whether the sizes were properly assorted. I suppose it is all right if you have a man who is absolutely reliable, but there are times when the shipments come in a little bit too fast for him, and if he knows what they are supposed to be that is what they are.

Mr. Dutton—I was unable to follow the reading of the paper closely, and I have not read it, but respecting the suggestion on page 7 as to reading meters and distributing bills. I do not know if any of your conditions are the same as ours, but we have found that, instead of delivering bills all at the end of the month, making all of our work wind up at the end of the month, and collections, where you have a discount come in on the first 10 days of the month, you have about 2 weeks in which everybody is up to his eyes and over his head with work, the rest of the month you are crediting up the accounts. We have divided our districts in ten or more towns, dividing the number of our meters about equal, and have three 10-day periods for discounts, taking sections and towns, and instead of having all our work come at the end of the month, the 10 days following the 1st of month, we have three 10-day periods towards which each of our meter readings tends. The first 10 days or 9 days of the month, bills delivered on the 10th we have the following 10 days for the discount period; then, take another 10 days and have a discount period. This divides the work of the reader and ledger clerk entering up in the meter ledgers all into three 10 day periods. After 3 months' trial we would not think of going back to the old system of having the discount period the first 10 days for the whole territory.

Mr. Ganser—This matter of discount days is of great interest to us at Norristown. The 9th and 10th of the month are the last days on which we discount bills. We have considerable confusion in our office, which is just on account, of course, of the great number of people coming in. It has been our object not to encourage the payment of bills when delivered, but rather to encourage the people to come to the office, to enable us to make whatever gas sales are possible. On the 9th and 10th we have more people in the showroom than on any other days, but have less opportunity of making sales on account of the confusion Our clerks on those two days are not doing anything at all, scarcely, but receiving bills. I have been very busily engaged in drafting a new form of gas bill, which we have not yet put into effect, and I believe it will prove very practicable, and think by bringing up this question I may possibly learn something from others that will aid me. We have a form of bill using perfectly plain type, without any curves or scrolls, having all the same character of type, only graded down by the point system. The type used in newspapers is 7-point, but we do not use anything quite as small. An important feature of this bill will be that, on the border, we have the 31 days of the month. We have a red line on that bill which states the last date upon which this bill can be discounted as indicated by a star. The latter will be ¼-inch from point-to-point. The figures used will be of 12-point, very large sized figures, so that they will be readily noticed by consumers. We deliver our bills immediately upon the return of the route book as fast as we are able to make them out, and now our discount period will start on the 5th of the month and end on the 18th. I have heard quite a number of gentlemen say at different times during this meeting that the question of how to handle discount had been quite a problem with them. I think there are many here who can give us some information.

Mr. Gillingham—I think I can give Mr. Ganser some experience along that line, as I have had practice in the past 5 years with a system practically like he is driving at. We read our meters route by route, which takes, we will say for argument, 2 days to a route After that time the bills were made out and dated, the bills having a space saying that 10 days after date discounts would not be allowed. The bills were sent out as soon as they were made up. For this route the people came in anywhere between the time their bills are received and the 10-day period thereon stated, providing they wanted to accept the discount. I don't remember just how many routes we had, they have to carry right through the month, so that our work was evenly divided. We had not less than 25 routes, and the crowd in the office was never great. We could always handle them comfortably. The clerks in the office always had so much work to do each day, with the exception of just after the month, when the general books were closed. That, of course, was taken care of by the chief clerk. But the fact that the meter readings were taken and sent out daily, and the discount period extended 10 days after the date of the bill, made everybody come in uniformly; collections were kept up and there was no confusion in the office; possibly at first a little from the fact that they were allowed only 10 days from the date of the bill, rather than from the 15th of the month, as on the old bill; but in 2 or 3 months' time they soon got used to that. Their discount period was always the same, and we always read their meters as near as we could on the same day each month, so they soon became accustomed on their route to coming in and paying their bills within the 10 days' discount period stamped on the bill.

The President—Any other gentleman?

Mr. Gotwals—Mr. Gillingham was there any confusion in regard to the discount period 10 days from date? Have you ever had any confusion? Wouldn't it be better to state the date when the bill was due for discount rather than say 10 days from date, as they might get around Sunday?

Mr. Gillingham—I am not sure, but think the date was stamped; that is, no discount would be allowed after a certain date, and yet it had also on there the 10 days of the discount period.

Mr. Vanden Bout—Should a customer come in without a bill can you tell from the ledger what date the bill was delivered?

Mr. Gotwals—The meter readers' slips were all dated before they went out. Let me go back further than that. Our meter slips were made up in a binder and given to the reader. What he read on that route that day he turned in to the bookkeepers, who took account of them, and that bundle of meter readings was put away on the file for further reference. That meant there were bundles and bundles of meter reading slips, but we very seldom are required to refer to them. The fact that it was on the ledger and went through that way was usually sufficient for the consumer. He seldom doubted it, and only in one or two cases we had to go back and hunt up the old meter slips.

The President—Anybody else, gentlemen? If there are no other questions will Mr. McPherson come forward and answer those that were asked?

Mr. McPherson—As to the pertinent questions asked by Mr. Gotwals. The meter-reading coupons are filed in a folio as slips which agree with a loose-leaf folio, like our ledger sheets, so we can readily refer to them. I do not think much of the objection to the reader knowing index of meter at last reading. As to reading prepayment meters, a man could keep the gas consumption month by month of any particular meter that he wished and could regulate the returns of his funds accordingly. The objection to the house record seems entirely plain. You would have to refer to two places for a consumer that might have two different accounts in order to satisfactorily explain the gas consumption; whereas, if the consumer's record is on one sheet of paper you can show him readily what he has been consuming as long as he has been right there, that being a peculiar advantage. As to the gross rate entered on the ledger sheet, we enforce our discount period, and the discounts necessary to carry forward do not amount to more than $80 or $90. We absolutely insist upon our bills being paid the 10th of the month, in which way, of course, we unquestionably have our net revenue. We also provide delinquent lists for use in sending cut-out notices, etc., for easy use in the collecting department. The advantage of an office copy of orders is to enable one, by looking into the files at any time, to discover there readily what orders have not been returned from the shop. The list of all orders that have not been returned is compiled twice a month, the fitting department being required to explain why the orders have not been completed. As to getting the signature of a consumer for a meter, there are times when debtors will not give up a meter; but when they sign an application it is agreed we can enter their premises and take the meter. Another reason why we have applications signed is that we wish our district representative to get as closely acquainted with our consumers as possible. We avail ourselves of every opportunity of calling on those people, to get to know them better. It is a simple matter when telephone orders come in to get the meter out and set it that day. We have a representative whose business it is to get in immediate touch with the people and have the order signed the following day, ready for our records, sign application for appliances, etc. The application is in the form of a very tight lease, making the property ours until paid for. As to making out bills for appliances, we believe a well-made out statement in typewriter style looks well, for which reason we make them out in regular typewriter form, and have printed on the bottom thereof, "If work is not satisfactory or left in an uncompleted state kindly notify us so we can remedy at once, and that we may know if

there is any dissatisfaction." As to time of credit allowed on a slow-running meter, that is determined largely by local conditions. The period we live up to I do not care to state. In fact, I think everybody would be governed by individual conditions. In respect of standing by our meter tests we do so absolutely. If a meter when properly tested shows it has been running correctly we do not make any allowance. Our meter is the record of our business, and we stick to its totals. A good consumer may conscientiously feel he has not used the gas charged, and so hold he is not being well treated; and I think, just as the merchant does at times in making an allowance which he knows is unjust, but he does it to get the goodwill and confidence of that patron, and knows that he will get every penny back that he has allowed. There are times when discretion may be used in so doing. It would be extremely bad business for anybody to order out a meter merely because you would not yield a trifle. It is much better business to keep in that meter, even if you make some allowance. However, I would emphatically have the consumer understand perfectly that his meter is accurate, that the allowance made is not because there is any question over the accuracy of the meter, but because we value the person's good opinion and business, and wish to make him feel that the corporation yields to him to keep him. About using the name instead of the number of the account, we have a classification explaining fully the different charges to be made against those accounts, so it is only a matter of a short time that people get very familiar with account numbers, even to the extent that that account number is fixed as readily in the mind as would be the name of the account. In making up a receipt voucher, we start to make it as soon as the first invoice comes in at the beginning of the month, and, on bills where discounts are to be made, exceptions are made to close and not hold. Each invoice that comes up O·K'd is added and posted, so the posting is up day by day. There is no holdup in the work. Should any occasion arise for changing the amount of that voucher, of course a rebate form of credit voucher is in order. Inventories are taken at different times to avoid the rush of work, which makes it very much easier to take an inventory of any stated stock than to take an entire inventory of all stock. The work is divided, and I think it is objectionable to have to crowd in possibly 2 weeks' work in 3 days' time. You do not get results like those obtained in spreading over a period thoroughly and systematically. Our meter readers are paid each month, nothing being deducted from their wages when they are sick. We are going to stop all collections by meter readers. We do not want them to handle any money; besides, we want all our consumers to come to the office. As to the matter of reading meters and delivering bills. This has been interesting to us, and we are about to consider changing our methods. There can be no doubt that if you get your bills out your money comes in. The average man who provides for paying his bills, will very likely settle right after reviewing it. This is demonstrated by the fact that we get often in those last few days we are not delivering our bills large advance payments. I think the matter of delivering bills as soon as possible has a further advantage of getting in money, which, of course, everybody can use; sometimes we need it. Concerning Mr. Frick's statement regarding the triplicate order form. In the first place we have a capable storekeeper (the only type of man you want), in whom we have entire confidence. We wish all our employees to keep closely in touch with all our business affairs, so far as that is advisable. We wish everybody to know that we want our employee to be posted as to what is going on around him; that we do not want to keep anything, in a general way, from our employee. In fact, we wish him to be as interested in things as we are ourselves. I think this covers all the questions that were brought up, and I especially believe that Mr. Gotwal's queries were well put. [Applause.]

On motion (seconded) a vote of thanks was passed to Mr. McPherson for his excellent paper.

COMMITTEE ON PLACE OF NEXT MEETING.

The President—Before adjourning I will appoint Messrs. Frick, Mason and Beck, a committee to report on next place of meeting, the report to be made to-morrow morning. The permanent badge of the Association, samples of which will be found in the anteroom, I think is the finest small badge of the sort that could be made. The cost is $1.50, and I hope everybody will take one. Those not provided with banquet tickets should remember that it will be served at 7 P.M., in Elks' Hall. The automobile trip is set for 1:30, at the Mansion House. This will give you just 1½ hours to get luncheon. Pleasures in store for you this afternoon include a visit to the wrought pipe mills, where the process will be shown in detail. Then will follow a visit to the locomotive shops of the Philadelphia and Reading Railroad, which shops are second only to those in Easton. If we get time we would like you to inspect the new plant of the electric company, as some of the gentlemen are in the electrical business as well as gas. Above all, though, we want to take you over our beautiful mountain. We have two important papers for to-morrow, respectively by Messrs. Ganser and Anderson. Those papers are among the most important on the list.

The session was then declared adjourned.

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THIRD DAY—MORNING SESSION.

The proceedings were started at 10:15 A.M. The President called for the

REPORT OF COMMITTEE ON PRESIDENT'S ADDRESS,

which was read by Chairman Anderson as follows:

Mr. Chairman, your committee to whom was referred the President's address, begs leave to offer the following report: There are many subjects contained in the address which call for appropriate consideration and we particularly call attention to the following:

We approve heartily of that part of the address which speaks of the relation between the company and the consumer, and might say that this is a 2-fold relation, involving the attitude of the consumer towards the company as well as the attitude of the company towards the consumer.

We believe the goodwill of the community is the most valuable asset of the company, and that the President is correct in saying the aim of the company should be to discourage the idea that there is necessarily any antagonism on its part to the consumer. If this be done it should put an end to the drastic legislation which seems to be the favorite pastime of some lawmakers.

We also desire to indorse that part of the address which deals with the relations of the company to its employees. It is a self-evident proposition that, in order to properly serve the public, the gas company must have the co-operation of its employees; and the statement is correct which notes that, in order to secure this result, there must not only be a faithful discharge of duty on the part of each employee but a hearty loyalty to the company and its interests. The remarks of the President on this subject are both timely and valuable.

We call especial attention to that part of the address dealing with the compensation of employees during sickness or on account of injuries. Particular emphasis should be placed upon the remarks relating to economy in company management. While it may always be said in general terms that it is always the aim of the gas engineer to practice economy in the management of his plant, we believe this to be the first time that attention has been called to the matter in this particular form, and we thoroughly indorse the suggestion that a committee be appointed from this Association to investigate this subject and report at a subsequent meeting.

W. O. LAMSON, JR.,
W. C. ANDERSON,
J. H. GANSER,
} Committee.

On motion the address was ordered received and spread on the minutes, with the added proviso that the recommendation of the appointment of a committee be endorsed.

The President asked for a motion ordering the appointment of three members to comprise the

COMMITTEE ON SCIENTIFIC MANAGEMENT.

The motion was made and the President appointed as such committee Messrs. Cresson, Anderson and Beck.

THE REPORT OF COMMITTEE ON NEXT PLACE OF MEETING

recommended Williamsport, which suggestion was unanimously concurred in.

The President introduced Mr. Herbert H. Ganser, ofNorristown, who read the following paper on

GAS KITCHENS.

When invited to prepare a paper on "Gas Kitchens," I fully appreciated that the subject, from a practical standpoint, was somewhat uncertain in the minds of many of you. I believe, however, that this feeling is very rapidly passing, and will soon be forgotten, if you can but bring yourselves to realize that a gas range is not wholly intended "To lessen the heat of the kitchen" in the summer months, but rather to lessen the housewife's burdens, making the home more comfortable and sanitary throughout the year. When

that venerable range manufacturer, Geo. D. Roper, said "A gas range is a coal range with a college education," he must have felt certain that a type of gas range had at last arrived that would take its place in the kitchen as a piece of furniture of high distinction.

All-year consumption in the kitchen has received some attention from us for the past 8 years, but it was not until March, 1909, that we began to give it particular attention. We have since then been conducting an active campaign. Up to the date mentioned we had but 4 all-year range consumers—none of whom ever returned to the use of a coal range.

We, first of all, considered thoroughly the conditions that had to be met, and the writer of this paper set about to consider those existing in the kitchen of his own home. He spent many hours there, particularly at the time meals were being prepared, and, after satisfying himself that he had the situation well in hand, we began our campaign.

First of all, we selected such consumers who were, to a great extent, using their gas ranges every day, and where the cooking was superintended entirely by the housewife. Of course, you know, it was essential to at once have satisfied consumers to point to, and we thought that where the housewife attended the cooking was the logical point of beginning.

Care should be taken not to overheat the room, if you wish to use the theme "That where gas is used for all year cooking there is better health." We found that, where steam heat was in use, the ratio of 1 square foot of radiation to 45 of cubical air space, without consideration of exposure, wall space and glass, was about what is required; where hot water and vapor heat were in use that the ratio of 1 to 30 was sufficient; where warm air heat was in use we are governed by the existing heating conditions of the furnace, and in most instances used a flue pipe of 6 inches diameter connected to a register in the floor. This part of the installation was easily accomplished. We found very little complaint from any of our consumers if they found, upon entering the kitchen on a cold morning, that the thermometer registered but 58°, for, after a top burner is lighted, the temperature will rise about 1° a minute for a period of 10 minutes, when the room is then sufficiently heated, and is easily maintained throughout the day.

Our most serious problem we found in connection with the supply of hot water. In this we found the coal range our most important foe and competitor. Few wanted to heat water with a gas water heater every time hot water was required, not always because of the additional expense, but, from the fact that it was not in storage, as it had been when the coal range was in use. All steps must be forward in this movement and none backward, and the convenience of always having hot water at a turn of the faucet, particularly in winter time, must be continued if you wish to meet the coal range's strongest recommendation. You will concede that a departure from this ever-ready hot water supply is a step backward.

To place all-year-gas-kitchens above the par value of a coal range kitchen you must generate equally as hot a water in October and early May as you do in frigid January and February. We had a most trying and perplexing time with water-backs. We not only had great expense on account of our experimenting, but the complaints received almost drove us all to the last "ditches of distraction." The fitters, representatives, and entire office force came in for a share of this discouraging condition. Words cannot express the feelings and sensations of the writer on these occasions.

We tried cast iron acorns, and various other forms of cast iron water-backs; wrought iron loops, coils and "hair-pins," but all were found impractical and not at all suited for the purpose. Some types corroded and produced rusty, dirty water, others were too bulky and occupied too large a space in the firebox. And, then, there were several other conditions that appeared almost beyond conquering—one of which was that rarely 2 householders in the same block "fired" alike, or used the same size coal.

At this time the writer was not experiencing any trouble whatsoever in his own home, but when this information was passed to the complaining consumer, we were usually met with the rejoinder "That's all right; that may be so in his home, but it is not working right in mine." We had almost come to believing that the reason why the writer's job worked so well was because he was using gas house coke, and, of course, the coke just had to be in close sympathy with the gas that was to be sold, and co-operate for success. We finally found success in brass pipe and brass fittings. Of course, this did not corrode, and impressed most people as being very expensive, since anything that's expensive must be very good. The size of pipe to be used must be determined by the distance from furnace to kitchen tank, as well as the size of the tank.

Our present method of installing the coil, if in a square or oblong heater, is to use the core holes in the heater provided by the manufacturer, if they are properly located (and many are not) and if there are no core holes, we provide them by drilling and tapping through the door frame, if the same is 1¼ inches in depth. If the depth is not sufficient, and the door frame is not a part of the front casting, we remove it and extend it by making a frame of 2-inch channel iron. If the door frame cannot be removed, then we drill and tap through the double shell of the heater—I now refer to steam and hot water heaters. We use for this purpose a combination drill and tap used for service work, lengthened about 8 inches.

Set your coil off from the side of the heater, about 6 inches, and not lower than 5 inches above the grate, thus permitting a sufficient quantity of live coals to surround the pipe at all times during the season, and preventing the damaging of your coil in raking and shaking; extend to the back of firebox for a distance of about 18 or 20 inches, and then, with an ell and nipple of sufficient length to raise it above the top of the door frame, come front and out your top hole, where it will be out of the way and prevent the shovel coming in contact with it in replenishing the fire.

This type of coil is certain to be efficient, and we now follow the above method in every installation. In circular heaters we confine ourselves to the same conditions as to height, only differing in that we get as near the center from the side as possible for the core holes.

With warm air heaters we experience the most difficulties, particularly if the kitchen is heated by hot water generated by the waterback. One of the most common troubles with an installation of this kind is to have the water in both tank and radiator heated to the temperature required at one and the same time. This could be overcome if all warm air heaters were of sufficient size to install 2 generators—1 in the fire (a coil), and another beneath the drum (a maltese cross or similar type). We have interviewed heater manufacturers on this point very extensively, but without gaining anything particularly beneficial toward aiding the situation.

If radiator and tank are connected on the same lines, be sure to put by-pass on the radiator, thus permitting it to be "turned off" if the kitchen should become overheated, or if an extraordinary quantity of hot water is required, as is often the case on the day the family laundering is done.

We use cocks, without waste, on both the lines going to and coming from the heater, so that in the event the coil should leak, the consumer would not be seriously inconvenienced by not having his house heated until such time as repairs can be made, and not necessitate the "turning off" of the water from the entire system, preventing him from resorting to the use of the gas heater if hot water is desired. Where the water supply is metered it is necessary to install a safety valve on the system to relieve excessive pressure, as there is a check valve back of all water meters. Before accepting an order for the installation of the equipment, we insist upon the removal of the coal range from the premises; we are not leaving any subterfuge for the ready return to its use if the consumer should become unreasonably discouraged at some time. This places the consumer and ourselves in a position that both are going to be protected; the consumer is certain then, and only then, to let you know of any trouble that has arisen, and gives us the opportunity of "making good" on our installation.

We take all coal ranges on part payment, and dispose of them to local real estate owners who have houses for rent, and to farmers and others living in the surrounding country districts. We have had no losses in the disposal of the coal ranges, and know almost immediately upon accepting them where they can be disposed of.

The type of range usually used is the elevated oven or cabinet; we very often furnish and connect a standard 5 feet by 12-inch galvanized tank, with gas water heater attached. Flue connections are on both range and water heater, which flue not only carries off the products of combustion and the odors from the cooking, but tends toward a more comfortable room in the warm months of the year. We, of course, also make use of ranges and water heaters already possessed by our consumers, and what we consider especially gratifying substantiation of our installations being successful, is the fact that a number of the first consumers to adopt all-gas-kitchens have since erected new homes and have made far more expensive installations and elaborated upon their first equipment.

It will take but a little time; so with your permission I will tell you of some of the "themes and arguments," we use to get all-year-

consumers. Of course, no great campaign succeeds without a slogan, and the one we adopted was "Ideal Kitchen Equipment—No coal; no ashes; no dirt; kitchen heated comfortably; hot water in abundance—Cook with Gas." A little lengthy, perhaps, but the one we thought most expressive and it rather "tickles" our fancy.

The president of the company with which the writer is affiliated once asked him if he had ever read "A message to Garcia." He had not, but he made haste to read it, and we want to tell you that this going after all-year-consumers is a case of "of going to Garcia." You have to "make good" with the above slogan, and the writer has thought many times during the months passed that it is the ever constant presence of this slogan's signification that is carrying us forward.

There are few in our city who do not know what an "Ideal Kitchen" is, and it no longer requires a long explanation by our representatives. We have not at this time a dissatisfied user on our list. We pay particular attention to the new houses that are being erected, and it is here wherein there still exists an obstacle that we hope to eventually (and in fact feel assured that we will) overcome. It costs more to make our installation than the purchasing and connecting of a coal range, and some of the builders have not yet become reconciled to the extra expense. Some, however, early co-operated and left the selection of whether it be "coal kitchen" or "gas kitchen" to the purchaser.

From some prospective converts came the argument that, "You will surely have to keep fire in the furnace earlier and later than heretofore." This was met by referring them to 2 or 3 agreeably satisfied consumers, and the answer invariably came back from them, "That the difference in kitchen fuel expense will warrant it." It is seldom, however, that they are called upon to operate their furnaces longer than their neighbor who still uses a coal range, as the heat from the portable type of coal range does not penetrate far beyond the kitchen in spring and fall. The oven lighted for 5 minutes, and the door left open, will quickly remove chill and dampness, and but 3 cubic feet of gas consumed. Where there are small children you are very apt to be told, "No; I dry small articles of clothing at the coal range." We meet this with, "You can place them over the radiator or on the circulating tank." The presumed inability to keep food warm in winter months without having additional expense is presented to us. This is met by teaching the consumer the value and intelligent use of the simmering burner, and the use of a small quantity of gas for a short while in the oven; plates and other dishes may be heated by the installation of a radiator with oven; top of oven, if warming closet is not provided; and the placing of a shelf made of galvanized sheet iron, and perforated with ½-inch holes, and attached to the top of a pedestal radiator.

All of us here are identified with companies operating in a section of our country with a variable climate, subjected to decidedly sudden and severe changes in temperature, but this should not deter you from seeking what the writer considers the very best field in which to sell our product, and this one of the most practical methods to increase gas sales.

### Appendix.

After the above was concluded, the writer was asked to supply the cost of installation of a steam heated system, a hot water heated system, and a warm air heated system. The average cost of steam system installation is as follows:

| | |
|---|---|
| Gan range | $17.25 |
| Water heater | 6.50 |
| Circulating tank | 4.25 |
| Radiator and valves | 9.00 |
| Water-back and connecting to tank, connecting gas range, connecting gas water heater, connecting radiator (labor and material) | 21.00 |
| Flue connections | 3.50 |
| Total | $61.50 |

Average cost of hot water system installation is as follows:

| | |
|---|---|
| Gas range | $17.25 |
| Water heater | 6.50 |
| Circulating tank | 4.25 |
| Radiator and valves | 12.50 |
| Water-back and connecting to tank, connecting gas range, connecting gas water heater, connecting radiator (labor and material) | 23.00 |
| Flue connections | 3.50 |
| Total | $67.00 |

The average cost of a warm air system installation is as follows:

| | |
|---|---|
| Gas range | $17.25 |
| Water heater | 6.50 |
| Circulating tank | 4.25 |
| Register in floor and 6-inch flue pipe | 8.00 |
| Water back and connecting to tank; connecting gas range and gas water heater (labor and material) | 17.00 |
| Flue connections | 3.50 |
| Total | $56.50 |

The above costs refer to houses where coal ranges have to be removed and the pipe fitting changed before installation can properly be made. The cost of installation in new houses is, of course, less, as the mechanics have a clear field to start in, and the core holes in heater very often are conveniently and properly located.

(To be Continued.)

[Proceedings, Furnished by the Secretary.—Continued from page 1208.]

## SEVENTH ANNUAL MEETING, IOWA DISTRICT GAS ASSOCIATION.

Held in Lafayette Inn, Clinton, Ia., May 24 and 25.

### First Day—Morning Session.

The President resumed the Chair and called for the

### Report of the Finance Committee.

Mr. Kennedy (Chairman) from the Committee reported that examination of the books and accounts of the Secretary-Treasurer proved the same were correct. Also, at the invitation of the President, was handed in the following

### Report of Nominating Committee.

Gentlemen: Your Nominating Committee herewith presents the names of those recommended as office bearers for the ensuing year:

*For President.*—Mr. G. W. Clabaugh.
*For First Vice-President.*—Mr. Campbell W. Fair.
*For Second Vice-President.*—Mr. B. C. Adams.
*For Secretary-Treasurer.*—Mr. G. I. Vincent.
*For Members of Council.*—Messrs. S. E. Linton, R. M. Parker and T. O. Kennedy.

On motion the report was received, and the President announced that an

### Election of Officers

was in order. On motion of Mr. Crawford the rules were suspended, and the Secretary was directed to cast the ballot of the Association in favor of the election of the gentlemen named to the respective positions for which they were recommended. The Secretary subsequently reported that the instruction had been complied with, the President announced the result and welcomed the members to seats in the convention and invited them to share in its deliberations.

This brought the convention to the regular order of reading the papers. The President introduced Mr. G. W. Clabaugh, of Omaha, Neb., who read the following paper on

### MANAGEMENT.

Management, as defined by the American "Encyclopedia Dictionary," is "the act of managing, carrying on, guiding, directing or conducting; conduct, administration, direction." Having so definitely and clearly the object and meaning of the word "management" before us, it remains for us to give a practical demonstration of the duties involved in the management of a business.

The manager is the pivot on which revolves all business enterprise, and it is, therefore, due to his watchful care and attention as to whether his undertaking is successful or a failure. Knowing then his great responsibilities, it is most important that he exercise every care and caution in organizing his force of employees, to see that he chooses the right men for heads of departments, men capable and willing to carry out his ideas and instructions, not only to do his will but be able to guide and control the men working under them; for it is well known that good results cannot be obtained in any business unless the working forces imbibe the push and energy of those in control. It is well said that a chain has only the strength of the weakest link, and it is, therefore, necessary that no flaws are found in the forging.

As this is a meeting of gas men, I, therefore, will no longer deal in generalities, but confine myself to the management of the gas business alone, for it is versatile enough in itself to occupy our attention for a little while.

For but a comparatively few years the gas industry has been looked upon as a commercial business, and should be dealt with as such; and it is due to this conclusion for its phenomenal growth. For many years this great industry was managed by men educated along technical lines only and, while they made great progress in the generators and retort house, in perfecting and simplifying the process of gas making, their education precluded them from becoming men of commerce; theirs was purely a manufacturing process of evolution and they deserve due credit for the results obtained The management of the business was placed in their hands and for many years the most important factor in all trade, the selling of the product manufactured, seemed a secondary consideration and their business slowly increased, not because of progressive management, but in spite of it.

Up to the year 1878 but little advancement had been made in this, one of the most important industries of the country, and while the sale of gas was lying dormant in the minds of those engaged in the business, a new light was put on the market, and by push and energy was forced to the front, until the stockholders of the gas companies were aroused into activity to meet the electric competition that was so rapidly depreciating their holdings. Then it was that the gas companies recognized, if they wished to remain in business, that a new order of management must be introduced to awaken interest in their product.

At first the superintendents started in with renewed energy to cheapen the cost of gas in the holder, believing that therein lay the secret of future success, and it was some years before they fully awakened to the fundamental principles of all business, that the selling of the product was the most important factor to be considered. And to do this, men of commercial training were required, men whose lives had been spent intermingling with men in their daily life, not the man who had shut himself up in the manufacturing plant, no matter how efficient he might be, to take hold of this new problem and solve it.

The whole business was reorganized, policies toward the public and municipalities were changed and improved upon, and, instead of the old theories of secrecy and independence, we now give the greatest publicity to our business, taking the public into our confidence and exerting every effort to make our interests mutual with our patrons. By courteous treatment and good service, we all know what the result has been. The gas companies all over the country are looked upon as the most progressive and up-to-date business enterprises we have. Now this could not, like Topsy, just have grown of itself, but it is entirely due to management. We, therefore, come back to the subject of our paper.

Having had such a wonderful experience in the upbuilding of our industry, we certainly shall have learned some good lessons to be pursued in our future actions. We have said that the success or failure of a business depended upon the management. Therefore, what do we consider the proper and correct management of a gas company? In the first place, the manager should be exactly what the name implies, a man having the confidence of his stockholders and directors and answerable to them for all of his actions. He should be a man well qualified, not only to manage and direct the operations of his company, but remember, in his dealings with the patrons of this company, that he is also a public servant and amenable to public requirements. He should have the respect of his employees, for no man can be a successful manager who fails in this regard. His personality is one of the strongest factors in his dealings, not only with his employees but the public as well; for a company is always judged by the men in control. The gas business should be organized as follows:

*The Manager.*—Whose duties the name implies.

*The Superintendent of Works and Distribution.*—A technical man who should be in charge of the manufacturing plant, the laying of gas mains, services and setting and removing meters, etc.

*Commercial Department.*—The head of this department should have charge of all the books and accounts necessary to the business, except manufacturing records and accounts directly relating to same. These should be kept at the works' office; all orders of whatsoever kind, the collection of accounts and all things applicable to such department.

*Commercial Agent.*—Should be in charge of all salesmen, demonstrators, appliances, in fact everything pertaining to the upbuilding and increasing of the selling end of the business. The men in charge of the distribution of appliances of all kinds should report to the commercial agent instead of the superintendent, for this work comes directly in line with his duties. When a solicitor sells an article, the full sale is not completed until a satisfactory delivery has been made; and who can be more interested than he? I know this seems like an innovation upon the domain of the superintendent; but, because it has always been in his department, is that any good reason why reforms for the betterment of the business should not be inaugurated? I think not. Now we have a working force as follows:

Manager; superintendent of works and distribution; commercial department; commercial agent.

The above, with foremen and sub-foremen in the different departments, each to report to his superior, and all heads to report to the manager. One man, and one man alone, should be at the head of the organization, for it is utterly impossible for two men to manage any business successfully. The Bible is our best authority that, "No man can serve two masters; he must either love the one and hate the other, or hold to the one and despise the other."

Now, who should be the manager? The man in charge of the commercial end of the business or the superintendent of works? I think the question answers itself, and unquestionably the man with the commercial training should be in charge, for his education has been such that he is better adapted to meet all the requirements of such a position. His experience has been with men, not machinery, and it is with the people that a gas company has its dealings, and to them it owes its successs or failure.

You will note that I have outlined the management of a large gas works, but I feel assured that the men employed to look after the smaller works will agree with me that the application is as pertinent to them in the management of their properties as it is to the larger establishments. Of course, there is necessarily a large amount of detail necessary to the upkeep of the business, which I have not gone into, nor is it necessary that the management should do so, as this should be left to the heads of the departments to look after.

*Discussion.*

Mr. Kellog—I fully agree with Mr. Clabaugh that organizations such as ours should always only have one head; but I am not so sure that I agree with him as to who that head should be. I don't think it would be safe to say that it should always be the commercial man; for I think in many cases it would be better otherwise.

Mr. Kennedy—This question of who shall be the manager of the company—the technical or the works man—is one over which no association will ever come to an agreement, for the reason that the technical men favor the technical man as manager, and the commercial men favor the commercial head. Mr. Clabaugh mentioned that the general superintendent should have charge of setting meters and laying services and mains, while the commercial department attends to setting the appliances. Is it correct to divide the meter work and the appliance work?

Mr. Clabaugh—I think the work should be divided, absolutely.

Mr. Kidder—I believe with Mr. Clabaugh that, in a large plant, very likely the commercial man should be the manager; but in a small plant, where we have to take one or the other, I think he should be a technical man.

Mr. Warnick—Mr. Clabaugh plays on a good chord in bringing out the fact that, in the development or progress of any business, it is necessary to have harmony in all departments, and that in order to have that harmony all departments should report to one man. I believe primarily that man should be one who has the commercial ability necessary to develop the commercial department, coupled with the training and experiences of the technical man. In other words, the technical man, in order to be any good, must look at his department commercially. He must be able to reduce the price of gas and to increase his business, if he aspires to be the manager; and I believe that is the type of man who in years to come is going to be the most successful manager, because he has experience and familiarity with all departments, and not in any particular department alone.

Mr. Blackwell—I believe it depends entirely on the organization of a particular corporation. A great many commercial men are fine at keeping records, sending cut-out notices and watching the financial end of the business, who would make an awful botch of settling disputes with disgrutled consumers or seeing that the stove and meter

connections were properly taken care of. Very few of these combined men are to be found, but when you do get a good one he is soon offered a big salary and goes to a big plant. The corporation fortunate enough to find a commercial man, who can take care of the other end too, is lucky; but very often a technical man can develop himself into a good commercial man.

Mr. Jones—The commercial man without any technical knowledge would not make a good manager; on the other hand, the technical man without commercial ability would not make a good manager. It is necessary to have a pretty fair combination, in my opinion.

Mr. Clabaugh—I think I can help out some of the gentlemen who really wanted to say certain things but did not. A technical man, with commercial training, will make the best manager that you can possibly get; but a commercial man, without any technical training, will make a very much better manager than a technical man without any commercial training, and I think that is what they wanted to bring out.

(To be Continued.)

## Management & Commercial Methods.

AN EXCELLENT LIGHTING EXAMPLE.—Through the courtesy of Mr. J. W. Murdock, we are enabled to give the following photographic representation of the Bethlehem (Pa.) Consolidated Gas Company's handsome new office structure on East Third street, South Bethlehem. The illuminating device is the Humphrey arc lamp, and the picture was taken at 10:15 P.M. the night of May 13th. The illumination of a building front was never better done in Bethlehem than this; and,

best of all, it has been successfully kept up ever since. In fact, the gas office is the show place of the city at night, when it comes to an inspection of well illuminated exteriors. It might be further said that the lighting was tried out first the night that witnessed the closing of a gas cooking demonstration in that city, which was successfully carried on in the week from May 8th to May 13th.

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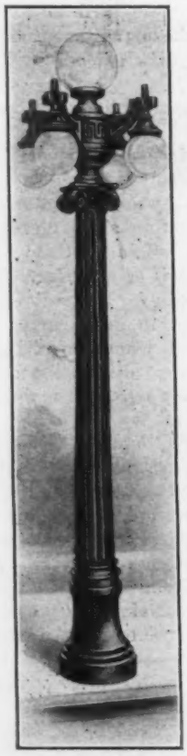
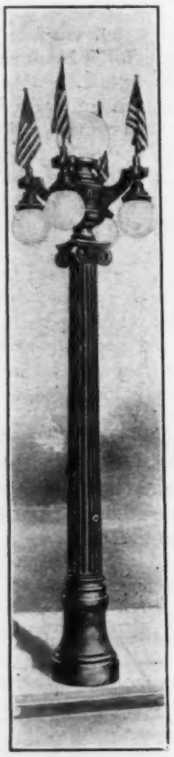
THE WESTERN GAS CONSTRUCTION COMPANY'S IONIC STANDARD FOR STREET ILLUMINATION.—The illustrations show clearly the construction, way of locating and effect of the handsome new lamp standards that are being made in the well-equipped shops of the Western Gas Construction Company, Fort Wayne, Ind. A peculiarity of the finish to this standard is that, after a short exposure to the elements, it takes on a beautiful brownish effect, resembling in striking manner a reproduction of the shading in old bronze statuary. Each standard supports 5 tungsten lamps, inclosed in globes of the following dimension: Upper globe; height, 12 feet, 6 inches; diameter, 14 inches. Lower globes, diameter, 10 inches. The flag holders, as arranged on top of the arms, permit of unique decorative effects, and the sockets are self-draining. The finish to the iron casting work is such as to insure the bringing out of all ornamental lines and figures in such sharp relief that the effect is really that of hand-chased work. All ornaments are cast directly on the columns, rivets, screws





and bolts being dispensed with. Air-gaps between column and ornaments are not in evidence, and the interior of the standard is accessible for wiring.

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THE NEW CLARK JEWEL WATER HEATER.—The water heater illustrated herewith, and which is being put on the market by Messrs. George M. Clark & Company, of Chicago, is made of 1-inch copper coil, a diameter that not only affords a large heating capacity, but also makes the coil more durable. Again, it does not fill up so rapidly as would a coil of smaller diameter. Being made of copper the coil cannot suffer from rusting in any degree. The casing is of cast iron with an inner jacket at the base where the heat is most intense, the entire front of the casing being built in the form of a door, thus making it easy to light the burner and clean the coil. The cast iron pan below the burner catches all condensation. The cast brass header at the bottom of the coil has an equal diameter to that of the mandrel on which the coil is formed. It is placed directly over the burner so that the hottest section of the flames not only strike against the lower turn of the coil but also against this hollow brass header which should be always filled with water. Mr. C. C. Peffly (who certainly should know) is our authority for the statement that the new type of Clark copper-brass coil is finding great favor in the Metropolitan district.

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A COMBINATION GAS-COAL RANGE.—The Ohio State Stove Company, of Columbus, O., have recently placed on the market a combination range which has several novel features. It can be used constantly if desired, or it can be used in emergencies to bake or cook with coal without interfering in any way with the use of gas at the same time. It can be used in winter to heat the kitchen with coal, coke, char coal or wood, or burn rubbish or waste at any time by simply lifting out the burners.

This range has a broiling oven, obtaining heat from both the coal-

and gas cooking sections. Size of range from end of drum to end of top, 46; shelf, if used, 6 inches. Top, 23 by 22 inches; size of elevated shelf, 10½ by 23 inches; ovens, 18 by 19 inches.

## Special English Correspondence.

COMMUNICATED BY NORTON H. HUMPHRYS.

SALISBURY, ENGLAND, June 10, 1911.

*The Telpher Transporter.—The Institution of Gas Engineers.—An Explosion at Stalybridge.*

The working expenses of gas works can be considerably reduced, although it must be confessed that from an æsthetic point of view the appearance is not improved, by the use of telpher transporting machinery, both for the unloading, storage and delivery of coal, and for the conveyance of coke, and the advantages afforded are so marked that this form of conveyor is becoming quite a common feature in gas works, handling 20,000 tons of coal or upwards per annum. It rarely happens that a works of this magnitude depends upon one brand of coal only. A mixture of two or three different sorts gives the best results, and at times it is an advantage to be able to control the proportions of the mixtures used. To effect this result with no other aid than that of the horse wagon and the shovel is sometimes impracticable, and at best requires a considerable area of storage sheds, and some considerable extra expense. This is the reason, more than economy in labor, for the coming popularity of the telpher, which bids fair to become as much a feature of the modern gas works, as the condenser or the purifying boxes. Coal can be deposited at will, each sort by itself, in the stores, or in front of the retorts, and when required, a mixture in any desired proportion may be picked up in the stores. An awkward point is that the delivery, under ordinary working, cannot be made to sympathize with the consumption. Suppose we decide to use equal proportions of A, B and C. For reasons beyond control, one of these may be stopped for a week or two, and the supply will consist of irregular proportions of A and B only. At the same time the stock of C may be at the back of the shed, or otherwise not get-at-able. The telpher put an end to difficulties of this sort.

I recently had an opportunity of inspecting an excellent example of a telpher transporter, which was erected at the Exeter Gas Works a few months since by Messrs. Willey & Co., of Exeter. It comprises two tipping pits, to which the railway trucks are brought by means of the Gas Company's own locomotive from an adjoining siding. The trucks have swing doors at each end and are emptied by the simple and expeditious plan of lifting one end to an angle sufficient to allow the contents to fall out at the other. The track consists of an overhead rail supported at a height of 43 feet above ground level by means of trestles at intervals of 65 to 85 feet, and lattice girders, and makes the circuit of the stores and retort houses. There is a cab with a bogie in front, to which is attached a 1-ton grab, which can be lowered into the tipping pit. The load is lifted up to rail level, conveyed to any desired part of the track and can be discharged at any point, as desired. Sliding doors are provided at intervals in the roofs of the buildings in the course of the track, and it is obvious that the grab can take a load from the stores as easily as from the tipping pits. The track covers a run of 840 feet and, taking an average journey as 600 feet, will transfer 20 tons of coal per hour. It can be driven and controlled by one man. The necessary power is provided by means of a Crossley S. E. type gas engine, coupled direct to a Siemens compound wound generator, giving an output of 22 kilowatts. An advantage of the telpher system is that the demands on the ground space—usually a valuable commodity in gas works—are extremely moderate.

The Council of the Institution of Gas Engineers have issued their annual report and also the notices of the 1911 meeting, which is to be held at Glasgow next week. It is some time since a meeting was held in Scotland, and those who have experienced the attention and hospitality extended to visitors at previous meetings will not fail to attend if it can possibly be managed. Unfortunately, many will find it impracticable in view of the Coronation festivities that are to come on in the following week. As public men they have their places on committees, and apart from that, in the smaller towns at any rate, the manager of the gas works is held responsible for illumination of the public buildings. In view of these responsibilities an absence of some days at this period is out of the question in many cases. The programme is a happy combination of business and pleasure. There are nine papers and a lecture, exclusive of the presidential address and committee reports, a luncheon at the invitation of the Glasgow Town Council, a reception and dance at the invitation of the same generous entertainers, visits to the public works and the Scottish Exhibition of National Art and Industry, and a long day steamer excursion on the Firth of Clyde. At the mention of the latter the odors peculiar to a gas works are replaced, in imagination, by the Irish Sea air blowing up from the Atlantic, as the large and magnificent Clyde steamer heads out at a good 20 miles per hour towards Ailsa Crag, passing the Great and the Little Cavinbran and the Isle of Allan, or follow the tortuous but ever beautiful channels of the Kyles of Bute. The familiar retort house roof and gasholders, as seen from the office window, are replaced by stretches of blue sea, hills green with verdure and grand towering rocks, and the customary sounds that tell us the engines are working as they should do, and the retort house operations going on as usual give place to the swish of the waves and the skirl of the bagpipes. Of the papers to be submitted to the meeting four are devoted to the primary object of carbonization and two deal with vertical retorts. It would appear that the inclined retort has had its day. Also one is pleased to notice that such homely but not the less important subjects as "Public Lighting and "Corrosion of Service Pipes" are to receive attention.

The report of the Council is more extensive than some of its predecessors, not only in respect to length, but also to the subjects dealt with. The membership has increased from 829 to 843, and this number, by the way, does not represent half the management of gas works in the United Kingdom, which certainly total up not less than 2,000. The Livesey memorial fund, established for the purpose of promoting a Professorship of Coal Gas and Fuel Industries at the Leeds University, now has nearly £11,000 to its credit. The Committee appointed to consider the suggestions contained in the presidential address of last year, as delivered by Mr. James W. Helps, of Croydon, as to the desirability of revising and extending the scope and representation of the Institute, are not yet prepared with a report, but are giving the subject further consideration. The Committee is a large one, and does this mean that they cannot agree? Eight District Associations are now affiliated to the Institution. The arrangements for the reception and entertainment of the German Association of Gas Engineers in October last were successful in every way and gave unqualified satisfaction to the visitors, and for this pleasing result the members of the Institution are indebted to the Reception Committee. The Committee on Carbonization, like their colleagues on the President's Address, appear to be "sitting on the fence." They hope eventually to carry on some comparative tests on the various systems in use, but feel that it would be better to wait till the initial difficulties inseparable from new installations have been overcome. The Committee on Refractory Materials issued the first section of their report in last year's proceedings, and promise to present the second at the forthcoming meeting. The importance of this report, in view of the increased temperatures rendered practicable by the regenerator furnace and the consequent heavier strain on the furnace arches and retorts, cannot be overestimated. The Publicity Committee have been actively at work and give some particulars of their operations, and there is a lengthy report on the unification of pipe

threads, setting forth the conclusions arrived at by the third session of the International Commission appointed by the French Gas Association. These are the principal but by no means the only items in the report, and are sufficient to show that the members of the Council have not been idle during the year. An interesting feature is the extent to which they have associated and collaborated with other Associations, not only in this but also in other countries, and these combined efforts cannot but be attended with benefit to all concerned.

A most unusual and indeed unprecedented occurrence happened at the Stalybridge Gas Works on the 15th ult. A mechanical scrubber had been out of use for 2 years, and was to be brought into operation, but was found to be choked. The first attempt was made on the 8th, and proved unsuccessful. Steam was turned on all day on the 10th, but the obstruction was not removed, and further endeavors proving unsuccessful on the 15th, a cover was taken off with a view of getting at the interior As a whitish vapor issued from the opening, operations were suspended pending instructions from the manager, who arrived on the scene within half an hour, and ordered the cover to be immediately replaced. When the men had got it in position, and one or two of the bolts screwed up an explosion occurred which blew out some 6 feet of the apparatus at the lower part. Two workmen were seriously injured, and one subsequently died. A singular feature about the affair was that the machine seemed to be regarded as a source of danger. The widow of the deceased said that he had frequently asserted that the place would be blown up, and the foreman of the works, in his evidence, said that he did not approve of the order to replace the cover, and personally would not have executed it, because the color of the issuing vapor suggested to him the presence of sulphur in a state of combustion, and he believed that an explosion would be inevitable. It is a usual thing to remove the covers of a scrubber or washer for the purpose of getting access to the interior, indeed it is a matter necessity that the whole should be cleaned out once in every year or two, but this is generally regarded by gas works men as a safe and ordinary operation, carrying no more risk than the striking of a retort cover, and one cannot understand why there should be any suspicion in this case. There was no evidence of a match or other source of flame being near the apparatus.

Prof. Harold B. Dixon, of Manchester, and Mr. S. Meunier, gas engineers of Stockport, were called in as experts to make a full examination and report. The conclusion they arrived at was that the explosion was caused by a mixture of gas that had leaked past the valves with air admitted at the open cover. Portions of the interior were composed of sheet iron, and were heavily coated with rust. This was acted upon by the foul gas, and formed a layer of iron sulphide that would be sensitive to oxidation. The smoke issuing from the opening indicated that sufficient heat had been generated to volatize some of the tar, and it was evident that a sufficient temperature was obtained to fire the gas. The action was similar to that which is known to occur with some kinds of oxide of iron when discharged from the purifier. They considered that the manager was quite right in replacing the cover, and that the explosion could not have been foreseen. The coroner's jury agreed that the occurrence was purely accidental and no blame attached to anyone concerned.

There is no reason for disputing the expert evidence, which is not only quite feasible, but the only way of accounting for the accident. The only thing remarkable is that such had not occurred before. It is not unusual for part of the internal machinery of a scrubber or washer to be constructed of wrought iron, and no limitation or precaution is applied in connection with the use of steam for clearing obstructions. But it is evident that a little more caution may well be exercised in these respects, particularly in cases where the existence of clean iron rust or sulphide, dry and not clogged with tar, is to be expected. The immunity of the past is probably due to the fact that the spontaneously inflammable matters are, as a rule, protected from the air by being saturated with water or tar.

## Recent Patent Issues.

Prepared for the AMERICAN GAS LIGHT JOURNAL by ROYAL E. BURNHAM, solicitor of patents and counselor in patent causes, 833 Bond Building, Washington, D. C., from whom illustrations and specifications of any patent mentioned below may be obtained for 10 cents.

994,990. Apparatus for Producing a Constant Gas Supply for Calorimetric and Other Purposes. H. Fahrenheim, Essen, Germany.

995,103. Gas Purifier. C. E. Speer, Hillsdale, Mich.

995,278. Water and Gas Meter. J. J. Mulhall, Albany, N. Y.

## Items of Interest
### FROM VARIOUS LOCALITIES.

THE real parties in interest in the recent turnover of the traction, gas and electric lighting plants at Waco, Tex., are Mr. J. F. Strickland and his associates. We congratulate the residents, for their utilities could not be under more capable direction or ownership than that of Mr. Strickland.

THE Morris Iron Company, of 91 West street, New York, reports a much larger receipt of orders this year than for the corresponding period a year ago. These orders (in the last fortnight) include: Fifty 5-light standards, for Battle Creek, Mich.; 35 ditto for Richmond, Va.; and 60 for Canajoharie, N. Y. As indicative of the type in greatest demand it is noted that all of these poles are high grade, and are all of the 5-light type, four globes being pendant, the 5th being upright. The designs selected are fully illustrated in Bulletin No. 20, which is now ready for distribution, and which will be mailed upon request.

A CORRESPONDENT in Los Angeles, Cal., writing from there under date of the 13th inst., notes: "After quite a stormy period of little over a year of life, the San Bernardino Valley Gas Company, exploited by one John Gardiner, was last week declared in bankruptcy, and the Los Angeles Trust Company was appointed as Receiver. The liabilities from the time the San Bernardino Valley Gas Company was organized until it went into bankruptcy, were something like $3 for each $1 invested. This is the winding up of a frenzied financier who dreamed he was a promoter."

MISS SARAH E. CRAIG is surely having a busy time of it this season, as witness her route this spring and summer, through several enterprisingly managed gas plants in Indiana and Illinois. The mid-week of June she was the center of attraction in Uncle Joe Cannon's home in Danville, Ills., and that interesting member of the lower house never attracted better attended, really representative audiences, when on the stump, that did Miss Craig, when in the all-gas kitchen. A strong point in the Craig plan of ways and means is the way in which she manages to appeal to the housewives through selecting the auditorium of the various clubs of women as her particular style of rostrum.

THAT the Sprague Meter Company's goods are finding fast favor abroad would seem from two good sized shipments to separate points in South America this month. One shipment took up 2,700 cubic feet of space on the last boat sailing (or steaming) prior to the 17th inst.

"Blotter No. 317," by the Gas Machinery Company, of Cleveland, O., is out. Write to Treasurer Arthur M. Smith for a copy thereof. It is a good one, in that it has to do with "Silica Benches."

THEY have a gas supply in Irvington, N. J., the purveyors thereof being the Public Service Company of that State, and Irvington is considered the abiding place of many of the upper ten, However, it seems there are other residents of that place that are of the lower zero. We are led to this conclusion from a tale told us the other day by a member of the Public Service staff. One of its inspectors was calling on the Company's customers in a certain district, and while visiting a mansion on Avon street, balanced his bicycle in the gutter. When he came out the bicycle was not there. His visit in the aforesaid mansion occupied less than 10 minutes.

MR. GEORGE P. KIMBALL, local Manager of the Mattoon (Ills.) Gas Light and Coke Company, and Mrs. Stacy H. Stewart were united in marriage early this month. The service was performed in the home of Mr. C. H. Ainsworth, by the Rev. C. C. Perkins, grandfather of the bridegroom. Notable in the ranks of the guests was the mother of the bridegroom, who had journeyed from faraway Lincoln, Neb., to witness the proceeding. Mrs. Kimball was formerly well-known in Lincoln. May they ever happy be.

THE proprietors of the Consumers' Gas Company, of Reading, Pa,. have accepted the franchise under the terms of which the Company is authorized to supply gas in the nearby borough of Wyomissing.

THE proprietors of the Erie (Pa.) Gas Company have ended the contention over the right of the authorities to levy an annual tax on

its main system by paying into the city treasury the sum of $3,000. This sum represents an annual tax rate of $30 per annum on each mile of main operated by the Company. The Company has in use a trifle over 100 miles of main.

THE new gas rate schedule for Norwich, N. Y., became effective the 1st inst. It is $1.50, gross; net, $1.40. The old rate was $1.80, gross; net, $1.50.

MR. ROBERT BROWN, Secretary Emeritus, Yale College Observatory, died in New Haven, the morning of the 11th inst. Deceased was born in Cincinnati, O., December 26, 1836, and graduated from Yale College in 1857. In the early sixties he became connected with the Cincinnati Gas Light and Coke Company, serving it in the various positions (progressively) of Secretary, Treasurer and Vice-President. At the end of his 16th year of service with the Company, he became Secretary of the Yale Observatory, right after the institution of that department, resigning therefrom in 1904—he became Secretary in 1879—which closed his active career as a business man. He was a prominent member of the American Association for the Advancement of Science, and is survived by his widow and two daughters.

"L. V. R.," writing from Portsmouth, Va., under date of the 7th inst., incloses the following: "The Portsmouth Gas Company was recently cited to appear in court by the Mayor, to show cause, if possible, why it should not pay the license tax of $1,000 as required under the city tax bill. The question came up when Attorney Bagby appeared before the Mayor and asked that the question as to whether or not the Company should pay the required tax, be referred to the City Attorney for a decision. The Company contends that it is exempt from city taxation under the State law, because it is required to pay a State tax on its gross receipts. Mayor Reed took a different view of the question, hence the investigation. Statistics show that the Company last year paid taxes to the State on $96,529.37 as its gross receipts which amounted to $905.29. The City Council in fixing the license tax bill for 1911 increased the tax on the Company from $400 to $1,000 a year. Heretofore the Company has paid the required tax to the city, but since it has been more than doubled it is understood that the Company will make a test case."

MR. GEORGE F. BLOOD has been appointed Sales' Agent for the Ruud Manufacturing Company in Western Massachusetts, Rhode Island and Connecticut. His headquarters will be in Boston, Mass. His brother is Mr. C. E. Blood, well known to the Eastern gas men as the persevering representative on the road, of the Humphrey gas arc folks.

THE Gas Machinery Company, of Cleveland, O., has been awarded the contract for new washing and scrubbing machinery, equal to caring for a big daily output, by the proprietors of the gas works' division of the properties of the Galesburg (Ills.) Railway and Light Company, Superintendent D. McAfee has entirely reconstructed the local gas division of the works. These aids, in addition to the new gasholder (up to retaining 350,000 cubic feet) recently completed, put the Company in excellent position to keep on giving excellent service to the residents as the city grows; and it surely does grow.

THE Fire and Lighting Committee of the New Orleans (La.) City Council seems determined to have the ordinance proposing stopcocks for every gas service, such cocks to be located on the service, at a point external to the structure into which the service enters, made part of the Building Code of New Orleans. Of course, the devices are to be paid for by the Company. It is conceded, however, that the ownership of the boxes and cut-outs remains with the Company. How's that for a concession?

THE proprietors of the Municipal Gas Company (and very wisely it seems to us) of Albany, N. Y., have determined to bring their electric lighting plant up to proper pitch by installing the necessary additional steam raising apparatus, rather than trust or depend on the spasmodic relief afforded by harnessing up to Spier Falls.

MR. SIMEON BALDWIN, formerly local representative of the Peoples Gas and Electric Company, of Stoneham, Mass., has been appointed new business manager of the Southern California Gas Company, with headquarters in Los Angeles, Cal. Mr. G. S. Barnes, of Waltham, Mass., takes charge at Stoneham.

MR. A. GILBERTSON, since 1909, Manager of the Watertown (Wis.) plant has gone to Rochester, Minn., to take charge of the plant of the Rochester Light, Heat and Power Company. His successor at Watertown is Mr. Frank Jennings, promoted from the ranks.

"V. B. T.," writing from Chicago, under date of the 19th inst., says: "Dear JOURNAL—I've waited for a week or more since the occurrence to read in the JOURNAL some notice of the happening. Having failed to find the mention, I deemed it appropriate to post you, so I inclose a clipping from the *News* of Chicago, dated the 10th inst., which is pretty near to the actual facts in their detailing: 'A modern version of 'Twixt Love and Duty,' will be staged to-night when Miss Louise Mansfield Cowdery and Mr. Charles B. Willard are married at the home of the bride's parents, 1367 North State street. Mr. Willard is the city's expert accountant in the Comptroller's Office, and it is his duty to scrutinize the accounts of about 30 utilities to see that they pay proper compensation to the city. The bride is a daughter of Edward Gilmore Cowdery, Vice-President, and the active local head of the Peoples Gas Light and Coke Company. Mr. Willard believes that 77 cents is too high a price for gas and Mr. Cowdery believes that it is too much of a reduction from the present rate of 85 cents. Mr. Willard intends to continue working for city, and is to be back at his desk Monday. In the coming big fight between the city and the Gas Company, as one of the best informed men on the subject of the city employees, it will devolve on Mr. Willard to carry a large share of the argument why the price of gas should be reduced, while his father-in-law, Mr. Cowdery, will be pitted against him and will bear the brunt of the argument on the other side.'"

THE Peoples Power Company, of Moline, Ills., will this year expend 25 to 40 thousand dollars on main extensions and replacements. The main item in the planning calls for the running of a low pressure, 6-inch cast iron pipe from 15th to 55th streets. The worst feature of the job is that the line will go through solid rock, of a bastard granitic type, for ¾ mile. However, Superintendent Reimers declared the line would have to be laid, if the residents out in the East section were to have gas this summer, and as the East section is a pretty good gas consuming section, Mr. Reimers' Directors said, "Go ahead!"

THE National Civic Federation certainly did full justice and honor to them and itself when it named as members of the Committee on Regulation of Railroads and Public Utilities these gentlemen: Forest E. Barker, President Massachusetts State Board of Gas and Electric Light Commissioners, and George B. Cortelyou, President Consolidated Gas Company, New York.

To show that there is something in a name, a line from Boston, Mass., dated June 19th, is to this effect: "It gives me much satisfaction to report to you that our authorities are at last putting proper weight on the crime of stealing monies from prepayment meters. Judge Barker, sitting in Superior Court some days ago, had up before him L. H. Barker and Edward B. Dieterick, convicted of looting 16 prepays on one day last month—it was the first named chap's second offense. Barker was put away for 10 years, while Dieterick was consigned to the Reformatory for an indefinite term.

HERE is where liability insurance stood a company in good stead. Some months ago an employee of the Rockville (Conn.) Gas and Electric Company, in its Stafford Springs plant, received injuries that cause him a fractured arm. He sued for $15,000 damages, was referred to the Travelers' Insurance Company, in which the Company carried employers' liability insurance, and the latter settled. The sum would not be given out by either complainant or defendant.

THE American Gas and Electric Company has purchased the stock of the Bellaire (O.) Light and Power Company, and will hereafter operate the plant.

THE Home Gas Company, of Salisbury, Md., will construct the gas plant for Delmar, Md., the franchise for which was recently granted by the Council. The approximate cost is put at $40,000.

THE specifications of franchise under which the Hummelstown (Pa.) Gas and Fuel Company will construct a gas plant in the named place, direct among other things, through Section 7 that, "Gas is to be furnished free for the Council Chamber and Lock-up, to an amount equalling $50 per year, and at half-rates for any additional gas used for any one year."

THE South Delaware Gas Company, after completing its lines at Laurel, Del., proposes to extend its pipes to the outlying settlement of Bridgeville. The work will be completed by September 1st.

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MONDAY, JUNE 26, 1911.

## The Market for Gas Securities.

A decision was handed down this week by a section of the U. S. Federal Courts declaring that the powder trust should be exploded—that is, disolved. Consequently New York gas shares dropped c uple of notches. *Raison* [illegible].

At auction some days ago 4,000 shares of the Carlisle (Pa.) Gas and Water Company were sold at $66.48 per $50 share. Washington (D. C.) gas sold up to 450 last week, and the end is not yet. The "management" of the Sackett combination in the Louisville (Ky.) Gas Company, has declared a dividend of 3 per cent. on the shares. So far President Sackett's administration of the Company's affairs has assuredly been of the order erratic.

The dividend on the common stock of the Baltimore Consolidated Gas and Electric Company for the past quarter was kept at the rate of 5 per cent. annum; and people in this section of the country are saying: "Wisely done; President Aldred." Other dividends of recent date are: U. G. I. Co., 2 per cent.; Massachusetts gas, 1; East Boston, 2½; Citizens (Quincy, Ills.), 1; New England Coal and Coke, 10—annual; N. E. gas—annual—3½; Union G. and E., preferred, 6—annual.

## Gas Stocks.

**Quotations by George W. Close, Broker and Dealer in Gas Stocks.**
115 BROADWAY, NEW YORK CITY.
JUNE 26.

☞ All communications will receive particular attention.

☞ The following quotations are based on the par value of $100 per share:

| *N. Y. City Companies.* | *Capital.* | *Par.* | *Bid.* | *Asked* |
|---|---|---|---|---|
| Consolidated Gas Co. | $73,177,000 | 100 | 144¼ | 145¼ |
| Central Union Gas Co.—1st 5's, due 1972, J. & J. | 3,000,000 | 1,000 | 103 | 105 |
| Equitable Gas Light Co.—Con. 5's, due 1932, M. & S. | 1,000,000 | 1,000 | 115 | 118 |
| Mutual Gas Co. | 3,500,000 | 100 | 155 | 165 |
| New Amsterdam Gas Co.—1st Con. 5's, due 1948, J. & J. | 11,000,000 | 1,000 | 100 | 101½ |
| New York & Richmond Gas Co. (Staten Island) | 1,500,000 | 100 | 35 | 50 |
| 1st Mtg. Gold Bds. 5 p. ct. | 1,000,000 | — | 98½ | 100½ |
| New York and East River—1st 5's, due 1944, J. & J. | 3,500,000 | 1,000 | 103 | 105 |
| Con. 5's, due 1945, J. & J. | 1,500,000 | — | 95 | 100 |
| Northern Union—1st 5's, due 1927, J. & J. | 1,250,000 | 1,000 | 94 | 100 |
| Standard | 5,000,000 | 100 | 50 | 70 |
| Preferred | 5,000,000 | 100 | 70 | 100 |
| 1st Mtg. 5's, due 1930, M. & N. | 1,500,000 | 1,000 | 103 | 105 |
| The Brooklyn Union | 15,000,000 | 1,000 | 142½ | 143 |
| 1st Con. 5's, due 1948, M. & N. | 15,000,000 | — | 105¾ | 107 |
| Yonkers | 299,650 | 500 | 130 | — |
| *Out-of-Town Companies.* | | | | |
| Bay State | 50,000,000 | 50 | ¾ | ⅛ |
| " Income Bonds | 2,000,000 | 1,000 | — | 75 |
| Binghampton Gas Works | 450,000 | 100 | — | — |
| " 1st Mtg. 5's | 500,000 | 1,000 | 95 | 100 |
| Boston United Gas Co.—1st Series S. F. Trust | 7,000,000 | 1,000 | 82 | 85 |
| 2d " " " | 3,000,000 | 1,000 | 47½ | 50 |
| Buffalo City Gas Co. | 5,500,000 | 100 | 5 | 8 |
| Bonds, 5's | 5,250,000 | 1,000 | 50 | 60 |
| Capital, Sacramento | 500,000 | 50 | — | 85 |
| Bonds (6's) | 150,000 | 1,000 | — | — |
| Chicago Gas Co. Guaranteed Gold Bonds | 7,580,000 | 1,000 | 104 | 106¼ |
| Cincinnati Gas and Electric Co. | 29,500,000 | 100 | 92 | 93 |
| Columbus (O.) Gas Co., 1st Mortgage Bonds | 1,500,000 | 1,000 | 96 | 98 |
| Columbus (O.) Gas Lt. & Heating Co. | 1,682,750 | 100 | 90¼ | 91 |
| Preferred | 3,026,500 | 100 | 75¼ | 80 |
| Consumers, Toronto | 2,000,000 | 50 | 200 | 204 |
| Consolidated, Baltimore | 11,000,000 | 100 | 106½ | — |
| Mortgages, 6's | 3,600,000 | | 89 | 150 |
| Chesapeake, 1st 6's | 1,000,000 | — | — | — |
| Equitable, 1st 6's | 910,000 | — | — | — |
| Consolidated, 1st 5's | 1,490,000 | — | — | 112 |
| Consolidated Gas Co. of N. J. | 1,000,000 | 100 | 15 | — |
| Con. Mtg. 5's | 976,000 | 1,000 | 92 | 95 |
| Bonds | 75,000 | — | — | 100 |
| Denver Gas and Electric | 3,500,000 | — | 102 | 105 |
| Detroit City Gas Co. | 6,580,000 | — | — | 50 |
| " Prior Lien 5's | 5,619,000 | 1,000 | 97 | 100½ |
| Detroit Gas Co., 5's | 881,000 | 1,000 | 75 | 80 |
| Equitable Gas & Fuel Co., Chicago, Bonds | 2,000,000 | 1,000 | — | 101 |
| Essex and Hudson Gas Co. | 6,500,000 | — | 39 | 40 |
| Fort Wayne | 2,000,000 | — | — | — |
| " Bonds | 2,000,000 | — | 55 | — |
| Grand Rapids Gas Light Co., 1st Mtg. 5's | 1,350,000 | 1,000 | 100 | 101 |
| Hartford | 750,000 | 25 | 190 | 200 |
| Hudson County Gas Co., of New Jersey | 10,500,000 | — | 112 | 113½ |
| " Bonds, 5's | 10,500,000 | — | 108 | 108½ |
| Indianapolis | 2,000,000 | — | 78 | 83 |
| " Bonds, 5's | 2,650,000 | — | 104½ | 105 |
| Jackson Gas Co. | 250,000 | 50 | 82 | — |
| " 1st Mtg. 5's | 290,000 | 1,000 | 97 | 100 |
| Kansas City Gas Light Co., of Missouri | 5,000,000 | 100 | — | 36 |
| Bonds, 1st 5's | 3,822,000 | 1,000 | 102 | 104 |
| Laclede Gas Co., St. Louis. | 10,000,000 | 100 | 108½ | 108½ |
| Preferred | 2,500,000 | 100 | 94½ | 102 |
| Bonds | 10,000,000 | 1,000 | 102½ | 103 |
| Lafayette Gas Co., Ind. | 1,000,000 | 100 | — | 60 |
| Bonds | 1,000,000 | 1,000 | 60 | 65 |
| Louisville | 2,570,000 | 50 | 143 | 145 |
| Madison Gas and Electric Co. " 1st Mtg. 6's | 400,000 | 1,000 | 106 | 108½ |
| Massachusetts Gas Companies, of Boston | 25,000,000 | 100 | 93¼ | 93½ |
| Preferred | 25,000,000 | 100 | 95 | 95¼ |
| Montreal Gas Co., Canada | 2,000,000 | 100 | 218 | 218¾ |
| Nashville Gas Light Co. | 1,000,000 | 100 | 110 | — |
| Newark, N. J., Con. Gas Co. | 6,000,000 | — | 56 | 58 |
| Bonds, 6's | 6,000,000 | — | 137 | 138 |
| New Haven Gas Co. | 2,000,000 | 25 | 200 | — |
| Peoples Gas Lt. & Coke Co., Chicago | 25,000,000 | 100 | 105¾ | 106 |
| 1st Mortgage | 20,100,000 | 1,000 | — | — |
| 2d " | 2,500,000 | 1,000 | 104 | — |
| Rochester Gas & Electric Co. | 2,150,000 | 50 | 88 | — |
| Preferred | 2,150,000 | 50 | 118 | — |
| Consolidated 5's | 2,000,000 | — | 104½ | 105½ |
| San Francisco Gas Co., Cal. | 15,500,000 | — | — | — |
| St. Joseph Gas Co.,—1st Mtg. 5's | 1,000,000 | 1,000 | 100 | 102 |
| St. Paul Gas Light Co. | 2,500,000 | 100 | — | — |
| 1st Mortgages, 6's | 650,000 | 1,000 | 104 | 106 |
| Extension, 6's | 600,000 | 1,000 | 112½ | 115 |
| General Mortgage, 5's | 3,447,000 | 1,000 | 97 | 98 |
| Syracuse Gas Co., N. Y. | 1,975,000 | 100 | 50 | 55 |
| Bonds | 2,047,000 | 1,000 | 101 | 103 |
| Washington (D. C.) Gas Co. | 1,600,000 | 200 | 445 | 450 |
| 1st Mortgage, 6's | 600,000 | — | — | — |
| Western Gas Co., Milwaukee | 4,000,000 | — | — | — |
| Wilmington (Del.) Gas Co. | 600,000 | 50 | 361 | — |

## MEETING TIMES OF THE VARIOUS GAS ASSOCIATIONS.

*American Gas Institute.*—Annual meeting, October 18, 19, 20, 21, 1911. St. Louis, Mo. Officers: President, Donald McDonald, Louisville, Ky. Secretary, A. B. Beadle, 29 West 39th st., N. Y. City.

*Canadian Gas Association.*—Annual meeting, ——— Officers: President, Arthur Hewitt, Toronto, Ont.; Secretary and Treasurer, John Keillor, Hamilton, Ont.

*Empire State Gas and Electric Association.*—Annual meeting, Nov., 1911. New York City. Officers: President, C. R. Huntley, Buffalo, N. Y.; Secretary, C. H. B. Chapin, 29 W. 39th street, New York City.

*Guild of Gas Managers of New England.*—Annual meeting, March, 1912. Young's Hotel, Boston; monthly meeting, second Saturday. Officers: President, Walter G. Africa, Manchester, N. H.; Secretary, H. K. Morrison, Brockton, Mass.

*Illinois Gas Association.*—Annual meeting, time, March, 1912, Chicago, Ills. Officers: President, C. B. Strohn, Elgin, Ills.; Secretary-Treasurer, F. E. Newberry, Dixon, Ills.

*Illuminating Engineering Society.*—Annual meeting, Oct. Chicago, Ill., 1911. Meetings of Sections, monthly. Pres't, A. E. Kennelly, Boston, Mass.; Secretary, Preston S. Millar, 29 W. 39th street, N. Y. City. Sections: New York: Secretary, Albert J. Marshall, 30 West 39th street. New England, Secretary, W. S. Farrow, 1290 Massachusetts avenue, Cambridge, Mass. Philadelphia, Secretary, G. B. Muth, 1000 Chestnut street Chicago, Secretary, F. H. Bernhard, Marquette Building.

*Indiana Gas Association.*—Annual meeting, Jan. 17 and 18, 1912, Indianapolis. Officers: President, S. E. Mulholland, Fort Wayne; Vice-President, Howard L. Olds, Indianapolis; Secretary-Treasurer, Philmer Eves, Indianapolis.

*Iowa District Gas Association.*—Annual meeting, time, May, ——, 1912; Clinton, Ia, Officers: President, Austin Burt, Waterloo, Ia.; Secretary and Treasurer, G. I. Vincent, Des Moines, Ia.

*Kansas Gas, Water and Electric Light Association.*—Annual meeting, time, ——— Wichita, Kas. Officers: President, W. A. Scothorn, Hutchinson, Kas.; Secretary and Treasurer, J. D. Nicholson, Newton, Kas.

*Michigan Gas Association*—Annual meeting, time, Sept. 20, 21, 22, 1911; Detroit, Mich. Officers: President, A. P. Ewing, Detroit, Mich.; Secretary-Treasurer, Glenn B. Chamberlain, Grand Rapids, Mich.

*Missouri Electric Light, Gas, Water Works and Street Railway Association.*—Annual meeting, April, 1912; St. Louis, Mo. Officers: President, F. E. Murray, Louisiana, Mo.; Secretary and Treasurer, N. J. Cunningham, Springfield, Mo.

*National Commercial Gas Association.*—Annual meeting, October 23-28, 1911. Denver, Officers: President, C. N. Stannard, Denver; Secretary, Louis Stotz, 29 West 39th street, New York City.

*Natural Gas Association.*—Annual meeting, May, 1912, Kansas City, Mo.; Officers: President, A. B. Macbeth, Independence, Kas, Secretary, T. C. Jones, Delaware, O.

*New England Gas Association.*—Annual meeting, third Wednesday in February, 1912; Boston. Officers: President, J. A. Coffin, Gloucester, Mass.; Secretary-Treasurer, N. W. Gifford, East Boston, Mass.

*New Jersey State Gas Association.*—President, William H. Pettes, Newark, N. J.; Secretary-Treasurer, Arthur H. Osborn, Belmar, N. J.

*Ohio Gas Association.*—President, John M. Garard, Columbus, O.; Secretary-Treasurer T. C. Jones, Delaware, O.

*Pacific Coast Gas Association.*—Annual meeting, Sept. 20, 21 and 22, 1911, Oakland, Cal. Officers: President, F. A. Leach, Jr., Oakland, Cal.; Vice President, W. Baurhyte, Los Angeles, Cal.; Secretary-Treasurer, John A. Britton, 445 Sutter street, San Francisco, Cal.

*Pennsylvania Gas Association.*—Annual meeting, April, 1912, Williamsport, Pa. Officers President, C. W. Butterworth, Millon, Pa; Secretary-Treasurer, William H. Merritt, Lebanon, Pa.

*Society of Gas Lighting.*—Annual meeting, December, 1911; monthly meeting, second Thursday. Place, New York City. Officers: President, Fred. S. Benson; Secretary, George G. Ramsdell, 254 West 89th street, New York city.

*Southern Gas Association.*—Annual meeting, April, 1912, Jacksonville, Fla. Officers: President, H. B. Hoyt, Jacksonville, Fla.; Secretary-Treasurer, E. D. Brewer, Atlanta, Ga.

*Southwestern Electrical and Gas Association.*—Annual meeting. April 27, 28, 29, 1912; Houston, Tex. Officers: President, J. E. Carroll, Beaumont, Tex.; Secretary, D. G. Fisher, Dallas, Tex.

*Wisconsin Gas Association.*—Annual meeting, May 15 and 16, 1912, Milwaukee, Wis. Officers: President, H. M. Buck, Waukesha, Wis.; Secretary-Treasurer, Henry Harmon, Milwaukee, Wis.

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Each coupling is threaded to a taper and the ends of each length of pipe are equipped with taper threads to exactly conform to the taper in the coupling. Ends of pipe are reamed and the couplings are recessed to cover the last thread on the pipe, adding strength and protection to the weakest point.

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**SEE SPECIAL SUBSCRIPTION OFFER, PAGE 1274.**

## FINANCIAL NOTICES.

DIVIDEND NOTICE.

OFFICE OF THE UNITED GAS IMPROVEMENT CO.,
N. W. CORNER BROAD AND ARCH STS.,
PHILADELPHIA, June 14, 1911.

The Directors have this day declared a quarterly dividend of 2 per cent. (one dollar per share), payable July 15, 1911, to stockholders of record at the close of business, June 30, 1911. Checks will be mailed.

1880-4 LEWIS LILLIE, Treasurer.

## POSITIONS WANTED.

LIGHTING ENGINEER wants executive work with large company or manufacturer. Familiar with practical operation of gas and electric lamps.

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Either as MANAGER or SUPERINTENDENT of a gas plant, preferably the former. Has an intimate knowledge of modern accounting methods and is thoroughly familiar with the management of men and the conducting of an office. Nearly 20 years in the business, and can furnish any references required.

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As MANAGER or SUPERINTENDENT of a gas company, thoroughly familiar with manufacture, distribution, meters, sales and modern systems of accounts Good references from present employers.

Address, "F. A. E.,"

1 81-3 Care this Journal.

BY A GAS MAN.

Address, "BUSINESS,"

1880-2 Care this Journal.

## POSITIONS OPEN.

SUPERINTENDENT for coal gas works in Western town of 10,000. Must be thoroughly competent, with practical experience, and one who can get results. Reply with references and particulars and state salary expected.

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## MISCELLANEOUS.

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MOTION STUDY, by Frank B. Gilbreth. 135 pages. Illustrated. Price, $2.

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THE GAS ENGINE, by Forrest R. Jones. 447 pages and 142 cuts. Price, $4.

HEATING, by W. J. Baldwin. Price, $2.50.

PUBLIC LIGHTING BY GAS and ELECTRICITY, by W. J. Dibdin. 528 pages. About 150 illustrations. Price, $8.

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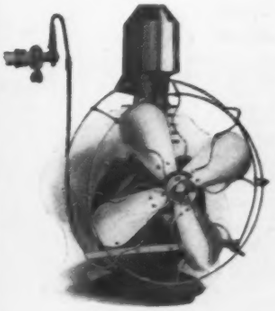

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Wood & Co., R. D.

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General Gas Light Co.
Welsbach Co.

**Meters—Acetylene.**
Keystone Meter Co.

**Meters—Air.**
Metric Metal Works.
United Gas Improvement Co.

**Meter Connections.**
Mueller Mfg. Co., H.

**Meter Locks.**
See Prepayment Meters.

**Meters—Natural Gas.**
Keystone Meter Co.
Metric Metal Works.
Pittsburg Meter Co.
Standard Meter Co.
Sprague Meter Co.

**Meters—Prepayment.**
American Meter Co.
Dickey & Co., C. H.
Griffin & Co., John J.
Helme & McIlhenny.
Keystone Meter Co.
McDonald & Co., D.
New York Improved Meter Co.
Sprague Meter Co.
Tufts Meter Co., N.

**Meters—Proportional.**
Metric Metal Works.
Pittsburg Meter Co.
Rotary Meter Co.

**Meter Provers.**
See Provers.

**Meters—Regular.**
American Meter Co.
Dickey & Co., C. H.
Griffin & Co., John J.
Helme & McIlhenny.
Keystone Meter Co.
Metric Metal Works.
McDonald & Co.
New York Improved Meter Co.
Pittsburg Meter Co.
Standard Meter Co.
Sprague Meter Co.
Tufts Meter Co., N.

**Meters—Station.**
American Meter Co.
Dickey & Co., C. H.
Griffin & Co., John J.
Helme & McIlhenny.
McDonald & Co., D.
Rotary Meter Co.
Standard Meter Co.
Tufts Meter Co., N.

**Meters—Steam.**
Gas Machinery Co.
United Gas Improvement Co.
Western Gas Construction Co.

**Meters—Test.**
American Meter Co.
Dickey & Co., C. H.
Standard Meter Co.

**Meters—Water.**
Pittsburg Meter Co.

**Meters—Wet.**
American Meter Co.
Helme & Mellhenny.
Tufts Meter Co., N.

**Oil.**
Standard Oil Co.

**Oil Tanks.**
See Holders.

**Outdoor Lighting Fixtures.**
See Street Lamps.
Lamp Posts.

**Patents.**
Burnham, R. E.

**Paints.**
Atlas Paint Co.
Dixon Crucible Co., Jos.

**Photometers.**
American Meter Co.
Connelly Iron, Sponge and Governor Co.

**Plants—Complete.**
See Engineers—Contracting.

**Pipe.**
Davis & Farnum Mfg. Co.
Dresser Mfg. Co., S. R.
Donaldson Iron Co.
Kerr Murray Mfg. Co.
Quintard Iron Works.
Sullivan Bros.
Wood & Co., R. D.

**Pipe—Wrought Iron.**
South Chester Tube Co.

**Pipe Cutting & Threading Mach.**
Mueller Mfg. Co.

**Pipe Laying.**
Sullivan Bros.

**Prepayment Meters.**
See Meters.

**Processes.**
See Coal Gas Apparatus.
Water Gas Apparatus.

**Producer Gas Plants.**
Gas Machinery Co.
Improved Equipment Co.
Wood & Co., R. D.

**Provers—Meter.**
American Meter Co.
Dickey & Co., C. H.
Helme & Mellhenny.
Metric Metal Works.
McDonald & Co., D.
Standard Meter Co.

**Pumps—Drip.**
American Meter Co.

**Purifiers.**
Bartlett-Hayward Co.
Bredel Co., F.
Cabot Mfg. Co.
Connelly Iron Sponge and Governor Co.
Cruse-Kemper Co.
Davis & Farnum Mfg. Co.
Gas Engineering Co.
Gas Machinery Co.
Isbell-Porter Co.
Kerr Murray Mfg. Co.
Lloyd Construction Co.
Quintard Iron Works.
Stacey Mfg. Co.
United Gas Improvement Co.
Western Gas Construction Co.
Wood & Co., R. D.

**Purifying Materials.**
Connelly Iron Sponge and Governor Co.
Gas Machinery Co.
United Gas Improvement Co.

**Purifier Trays.**
Cabot Mfg. Co.
Lloyd Construction Co.

**Pyrometers.**
Bristol Co.
Brown Instrument Co.

**Ranges—Gas.**
Crane Co., Wm. M.
Rathbone Sard & Co.

**Regulators.**
See Governors.

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Baltimore Refractory and Fire Brick Co.
Didier-March Co.
Evens & Howard Firebrick Co.
Gardner, J., Co., James.
Gas Machinery Co.
Gautier & Co., J. H.
Laclede-Christy Clay Products Co.
Mauer & Son, H.
Missouri Fire Brick Co.
Parker-Russell Mining and Mfg. Co.

**Retorts—Vertical.**
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Gas Machinery Co.
Improved Equipment Co.
Laclede-Christy Clay Products Co.
Parker-Russell Mining and Mfg. Co.

**Rubber Goods.**
New York Rubber Co.
See also Bags.

**Services.**
Sullivan Bros.
See also Pipe.

**Service Boxes.**
Morris Iron Co.
Mueller Mfg. Co., H.

**Service Cocks.**
American Meter Co.
Mueller Mfg. Co., H.
See also Cocks.

**Scrubbers.**
See Purifiers.

**Scrubber Trays.**
See Purifier Trays.

**Specials.**
See Pipe.

**Stoking Machinery.**
See Charging Machinery.

**Stocks and Dies.**
Mueller Mfg. Co., H.

**Stopppers—Gas Main.**
Safety Gas Main Stopper Co.

**Storage Tanks.**
See Holders.

**Stoves.**
See Ranges.

**Street Lamps.**
Miner, Thos. T. W.
Welsbach Street Lighting Co.

**Structural Iron Work.**
See Iron Work.

**Tapping Machines.**
Light, Geo.
Mueller Mfg. Co., H.

**Tar Extractors.**
See Coal Gas Apparatus.
Water Gas Apparatus.

**Thermometers**
American Meter Co.
Bristol Co.
Brown Instrument Co.
Gas Machinery Co.

**Testing Apparatus.**
See Instruments.

**Tools.**
Dresser Mfg. Co., S. R.
Light, Geo.
Mueller Mfg. Co., H.
Safety Gas Main Stopper Co.

**Tubing.**
See Rubber Goods.

**Valves.**
Bartlett-Hayward Co.
Davis & Farnum Mfg. Co.
Gas Machinery Co.
Isbell-Porter Co.
Kerr Murray Mfg. Co.
Lodlow Valve Mfg. Co.
Roots Co., P. H. and F. M.
Stacey Mfg. Co.
Western Gas Construction Co.
Wood & Co., R. D.

**Vertical Retorts.**
See Retorts.

**Washers.**
See Purifiers.

**Water.**
See Heaters.
Meters.
Pipe.

**Water Gas Apparatus.**
Bartlett-Hayward Co.
Gas Machinery Co.
Stacey Mfg. Co.
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**Water Tanks.**
See Holders.


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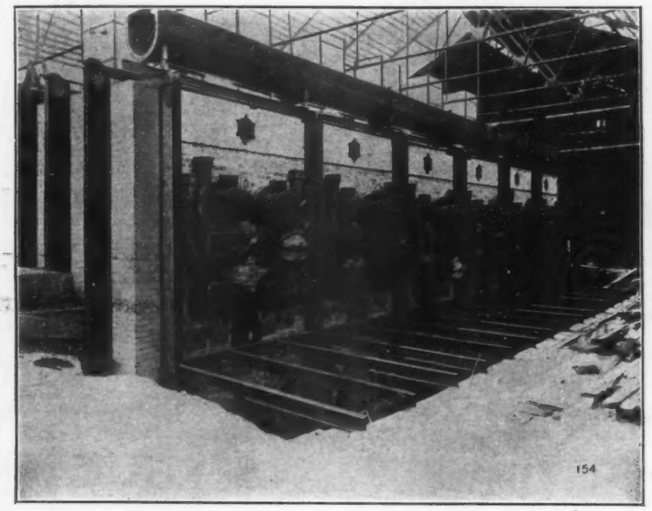

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## PUBLIC LIGHTING TABLE FOR JULY, 1911.

[COMMUNICATED BY THE AMERICAN METER COMPANY.]

| Day of Week. | MOONLIGHT SCHEDULE. | | |
|---|---|---|---|
| | Date. | Light. | Extinguish. |
| Saturday | 1 | 10.30 P.M. | 3.30 A.M. |
| Sunday | 2 | 10.50 F.Q. | 3.40 |
| Monday | 3 | 11.10 | 3.40 |
| Tuesday | 4 | 11.30 | 3.40 |
| Wednesday | 5 | 12.00 | 3.40 |
| Thursday | 6 | 12.30 A.M. | 3.40 |
| Friday | 7 | 1.00 | 3.40 |
| Saturday | 8 | 1.40 | 3.40 |
| Sunday | 9 | 2.20 | 3.40 |
| Monday | 10 | No L. | No L. |
| Tuesday | 11 | No L. F.M. | No L. |
| Wednesday | 12 | No L. | No L. |
| Thursday | 13 | 8.00 P.M. | 10.20 P.M. |
| Friday | 14 | 8.00 | 10.50 |
| Saturday | 15 | 8.00 | 11.10 |
| Sunday | 16 | 8.00 | 11.30 |
| Monday | 17 | 8.00 | 12 00 |
| Tuesday | 18 | 8.00 L.Q. | 12.20 A.M. |
| Wednesday | 19 | 8.00 | 12.50 |
| Thursday | 20 | 8.00 | 1.20 |
| Friday | 21 | 8.00 | 2.00 |
| Saturday | 22 | 8.00 | 3.50 |
| Sunday | 23 | 7.50 | 3.50 |
| Monday | 24 | 7.50 | 3.50 |
| Tuesday | 25 | 7.50 N.M. | 3.50 |
| Wednesday | 26 | 7.50 | 3.50 |
| Thursday | 27 | 7.50 | 3.50 |
| Friday | 28 | 7.50 | 3.50 |
| Saturday | 29 | 7.50 | 3.50 |
| Sunday | 30 | 9.10 | 4.00 |
| Monday | 31 | 9.40 | 4.00 |

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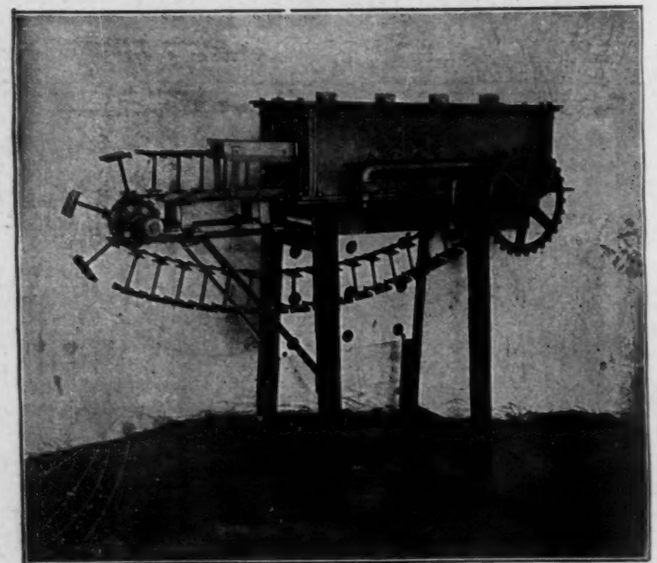
No. 84 Heating Machine.



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Pressure Blowers, Heating Machines,
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AMOUNT - } OF WORK
SIZE - - } to be done in
KIND - - } given time.

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BUT

## Well,—Any Lunkhead Knows This:

**You can't go gunning after the geese that lay the golden eggs**

**AND STILL GATHER GOLDEN EGGS**

Knock, brother, knock for fair
He's nothing but a low down millionaire!

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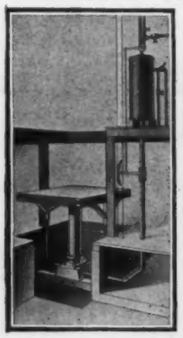
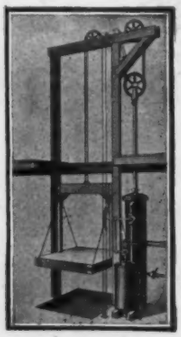
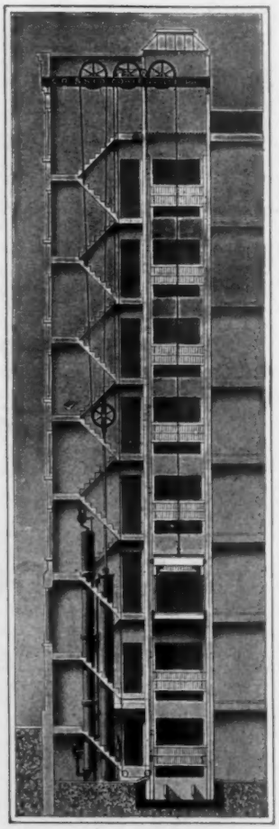


THE GAS MAN'S PET.





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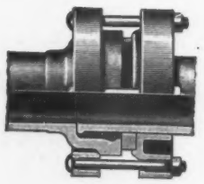
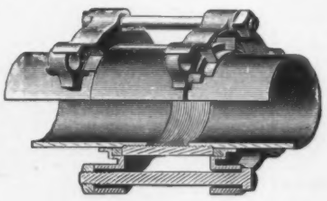


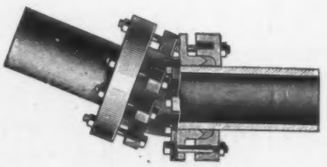
Clamp for Bell and Spigot Joints.

Style 4½.



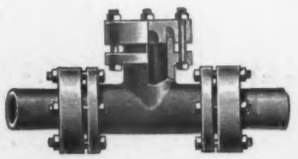
Clamp for Screw Collar.

Style 4.



Angle Couplings.

Style 28.



Fitting Caps.

Style 30.

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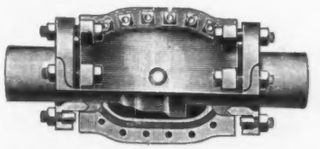
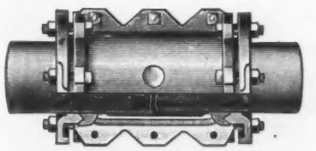


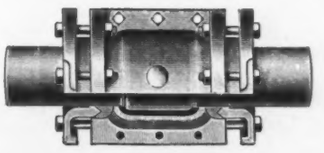
Heavy Split Sleeve for Cast Iron Pipe.

Style 26.



Light Split Sleeve for Cast Iron Pipe.

Style 27.



Light Split Sleeve for Wrought Iron Pipe.

Style 13.

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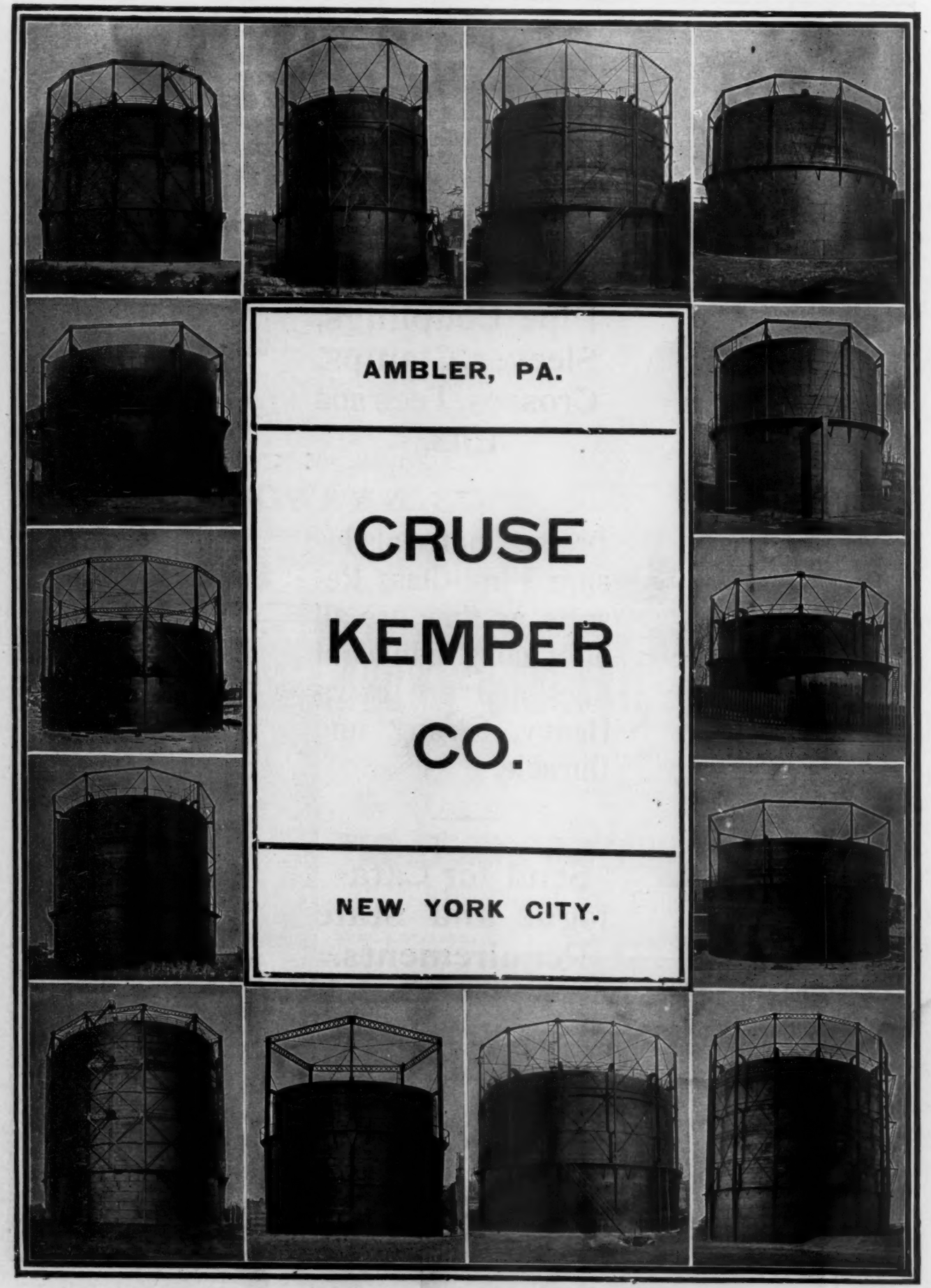
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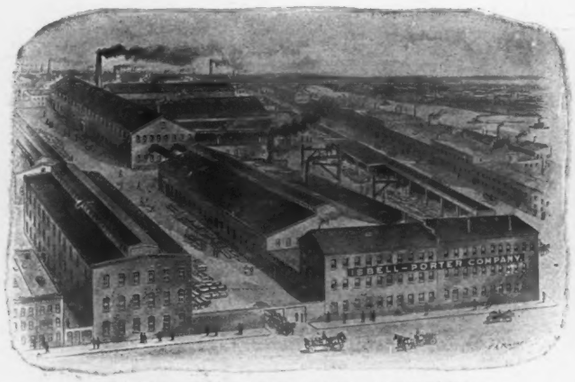


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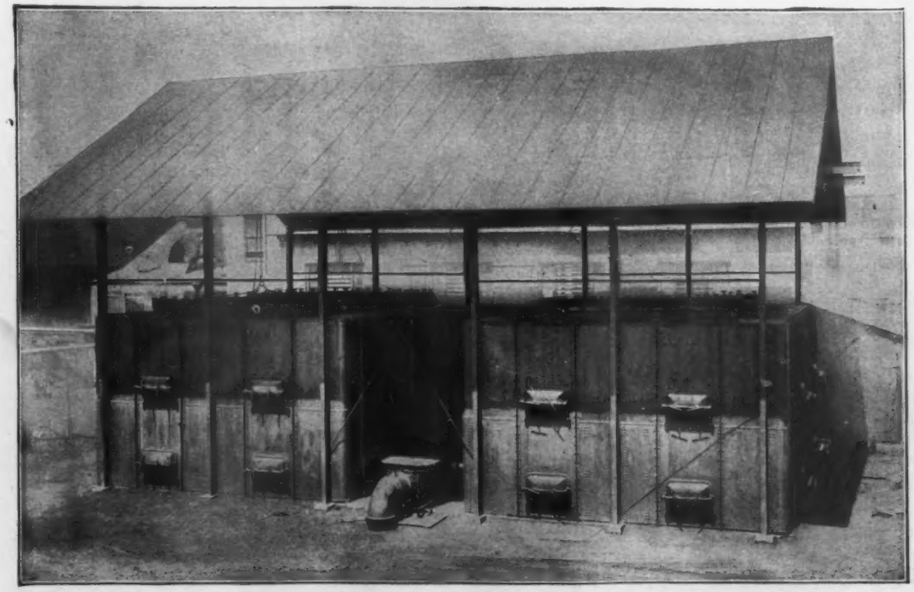

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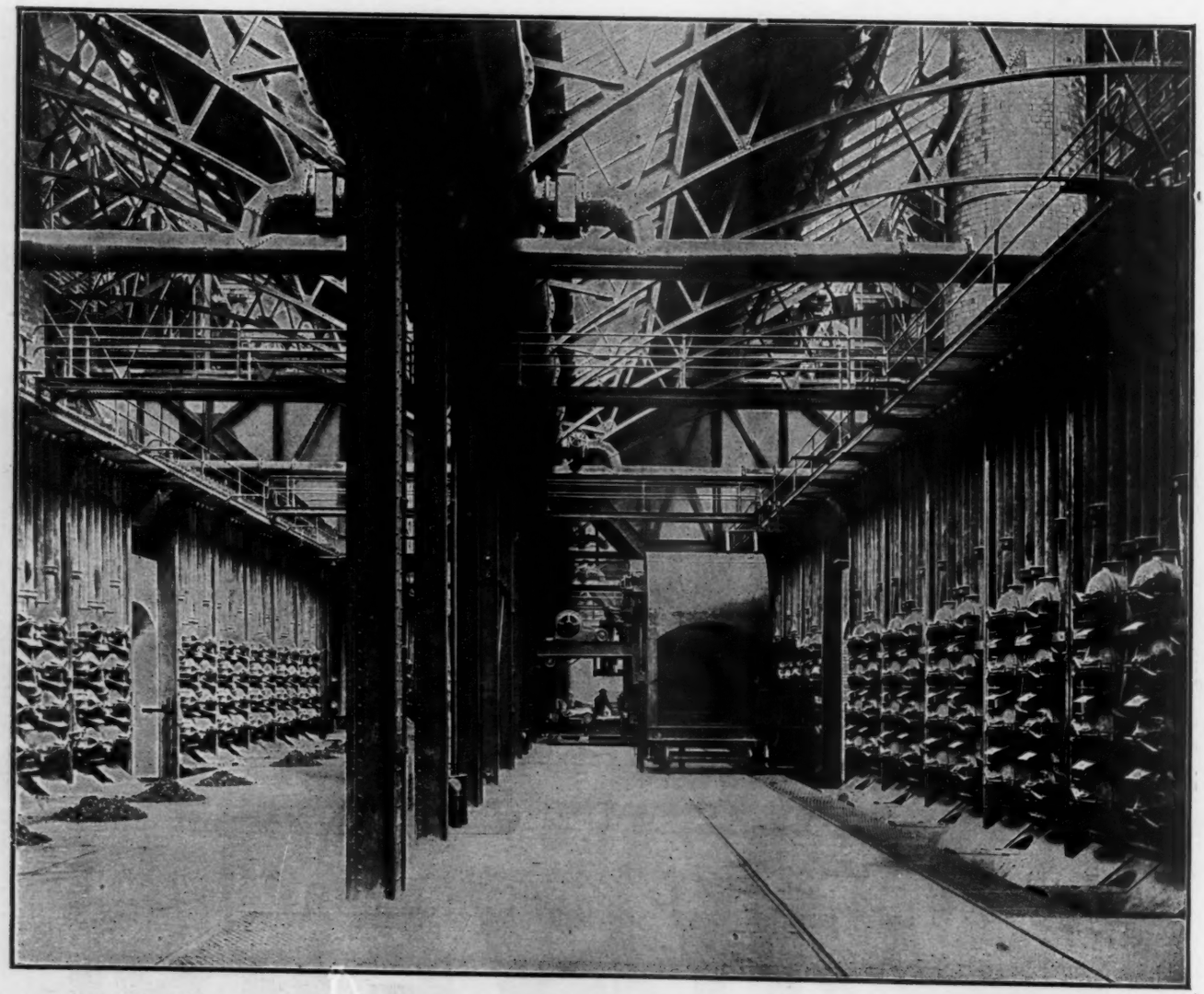

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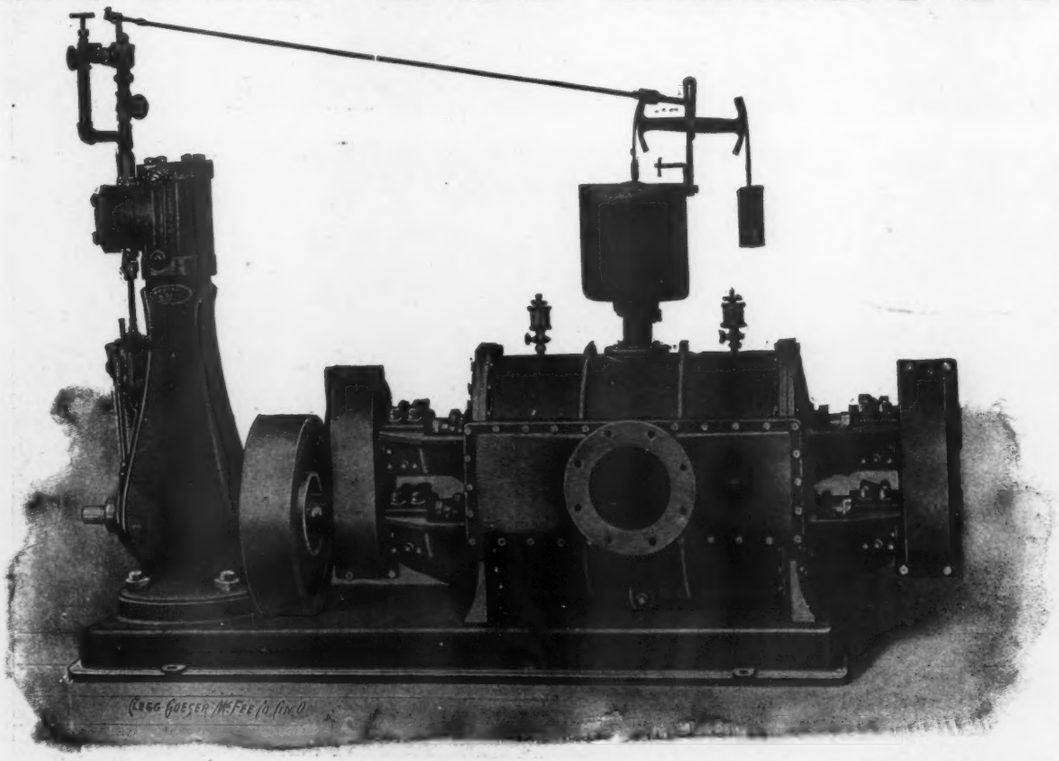

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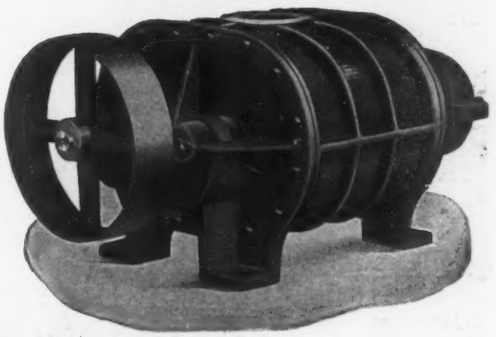

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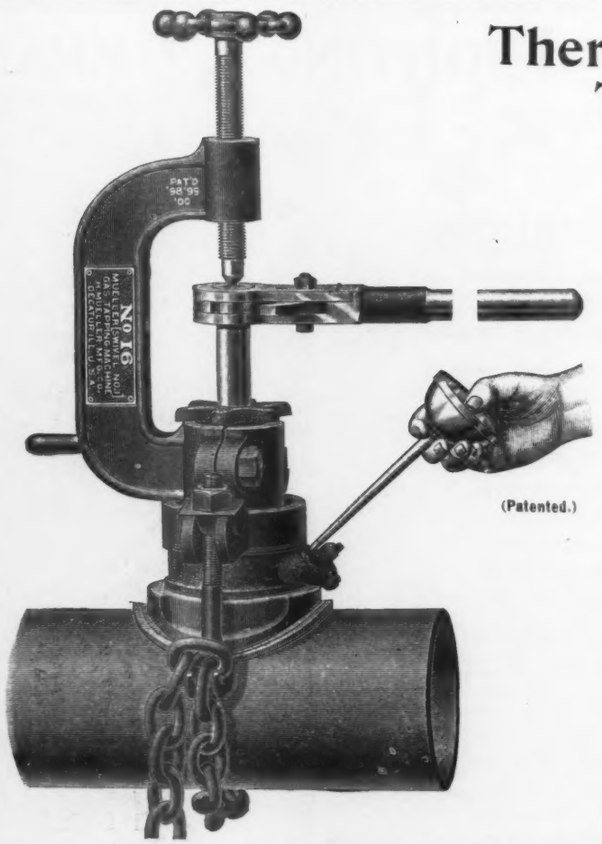


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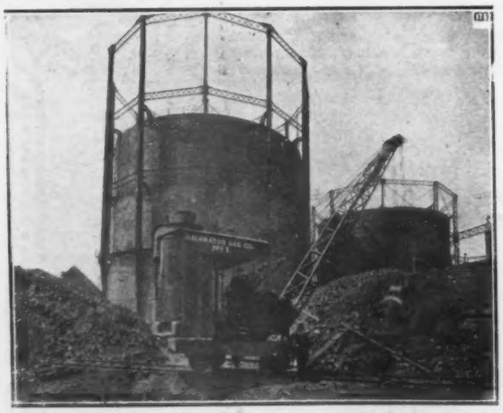

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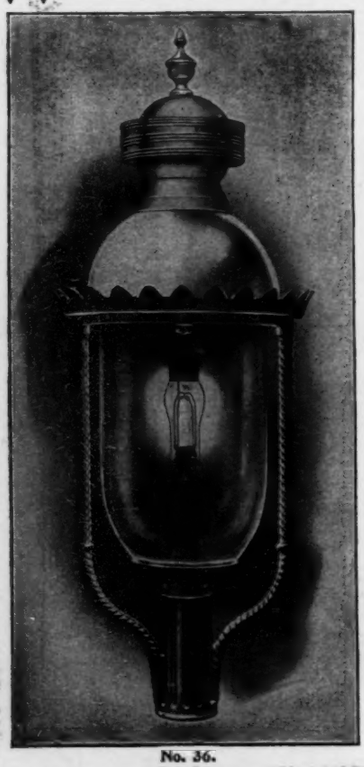

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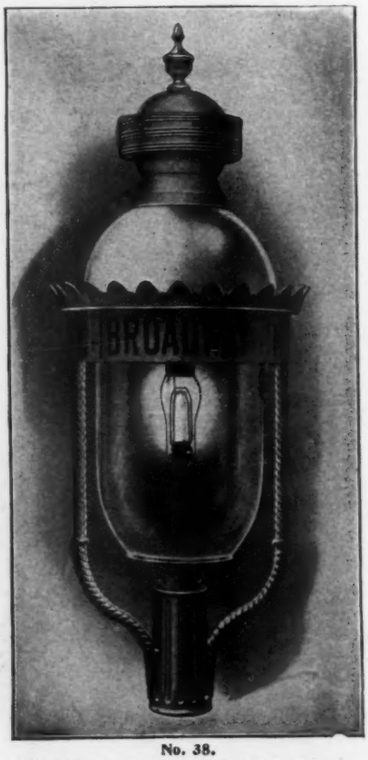

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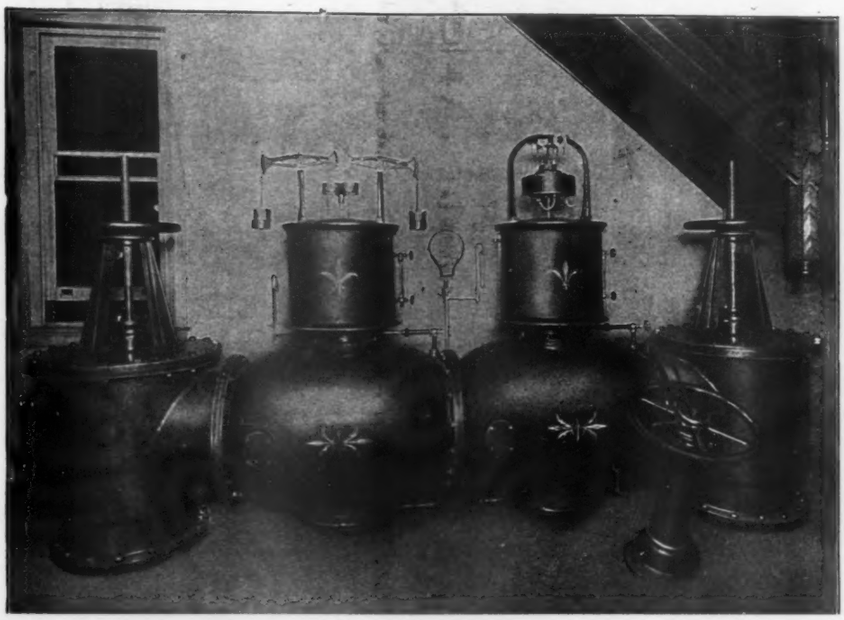

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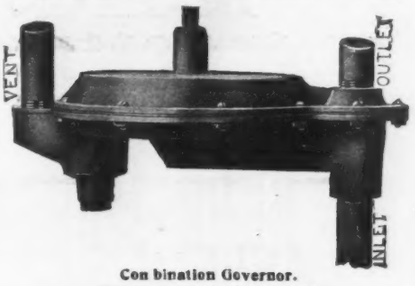


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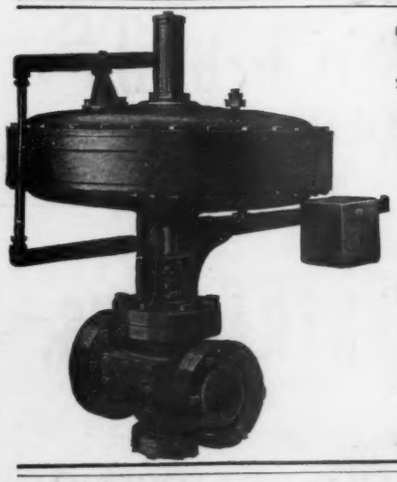

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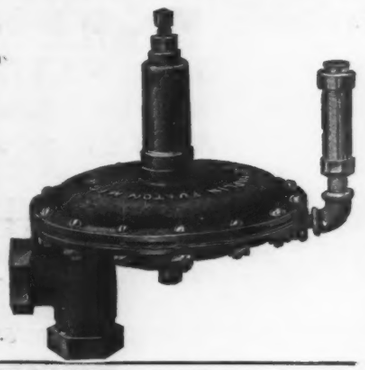

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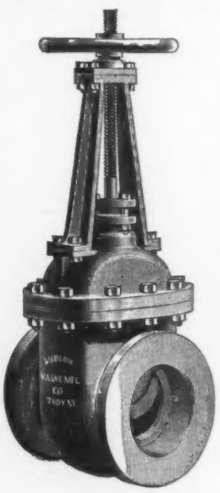

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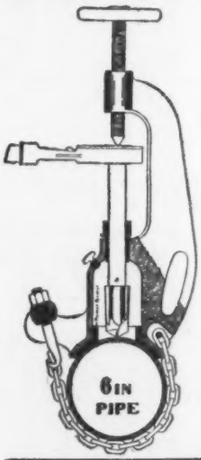


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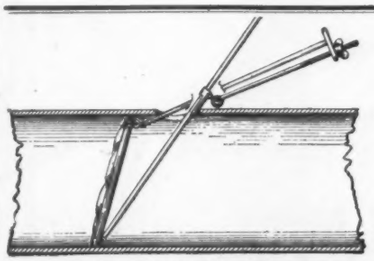

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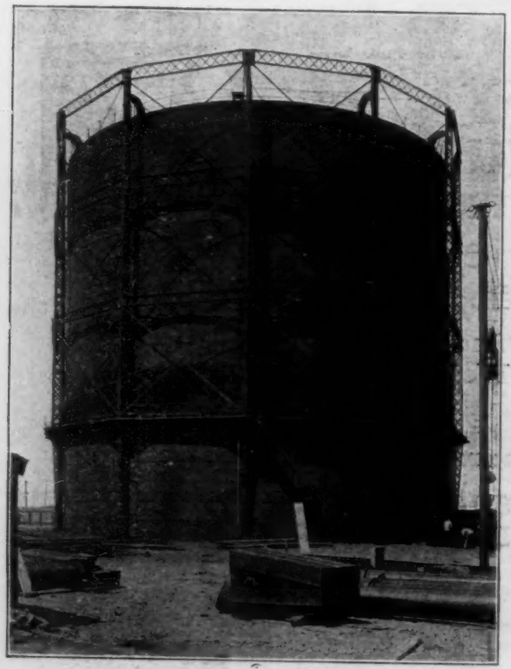

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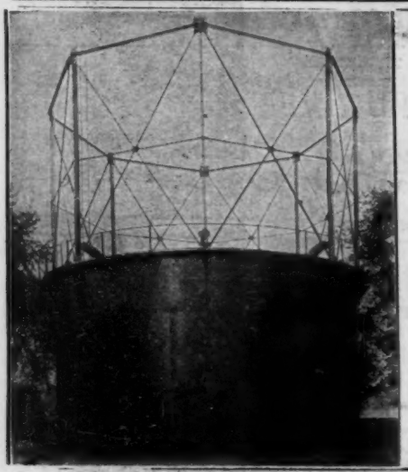

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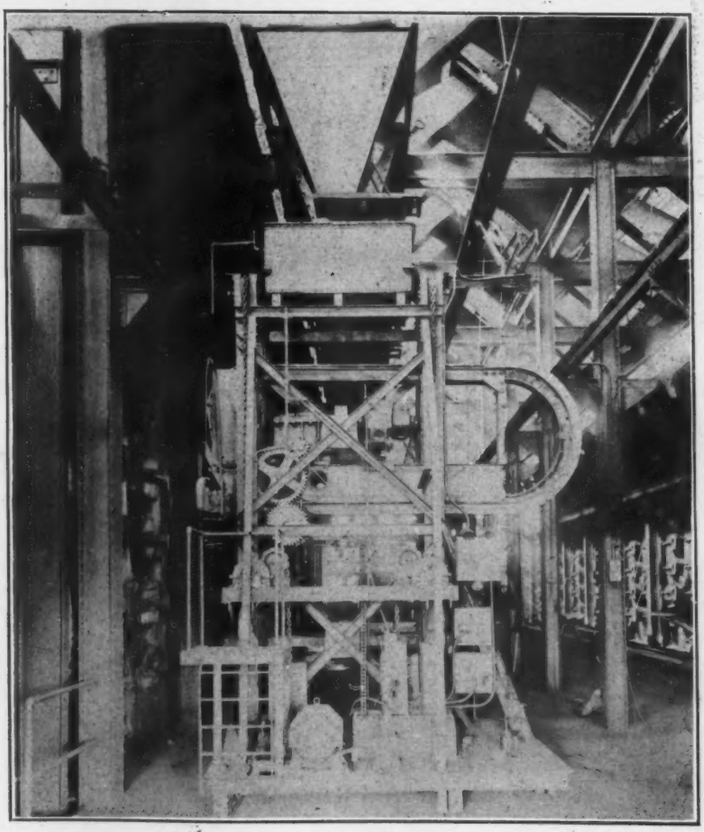

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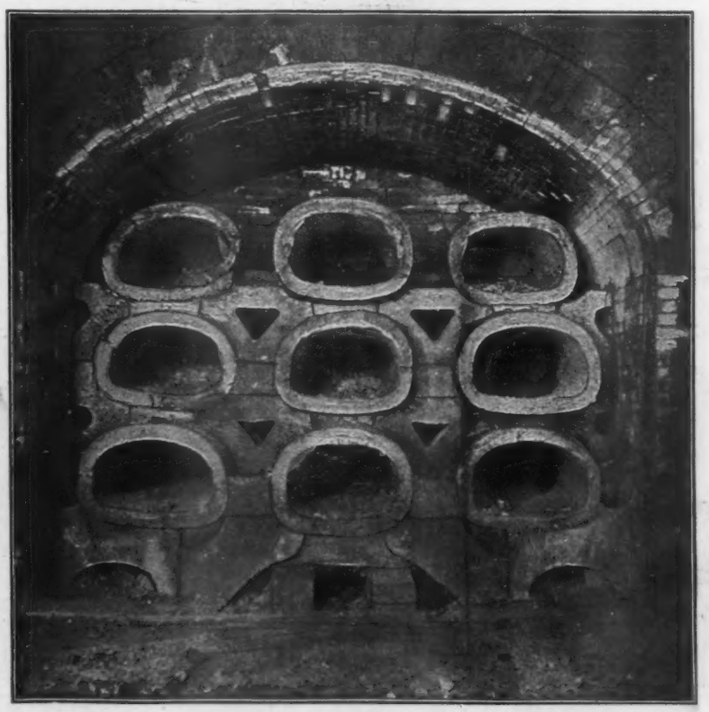

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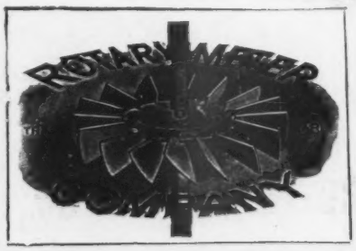


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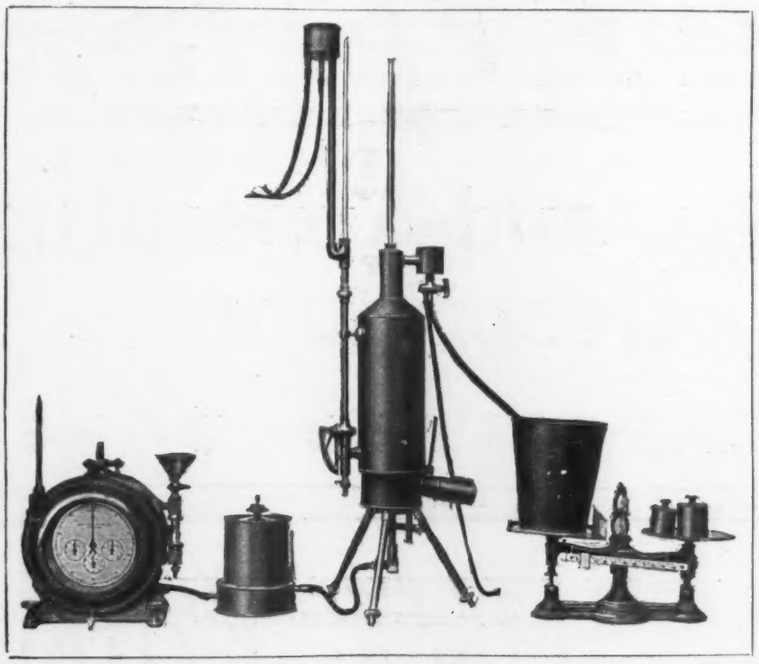

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